

Washoe Park Trout Hatchery
Montana Fish Wildlife and Parks
Anaconda, Montana

Consultants

Structural :
Beaudette Consulting Engineers
113 West Main Street
Missoula, Mt 59802 (406) 721-7315

Mechanical :
Dawes Engineering & Design Co.
48 Hibbard Way
Helena, MT 59601 (406) 441-4000

Electrical :
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Plumbing :
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Geotechnical :
Robert Peccia and Associates
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Helena, MT 59604 (406) 447-5000

Date : 8 - 7 - 2017
Project Number : 015-007

Drawn By : Wm. R. N.

Checked By : Wm. R. N.

07 - 17 - 2017 : Re-bid

COVER SHEET
PROJECT INFO.
INDEX OF DRAWINGS

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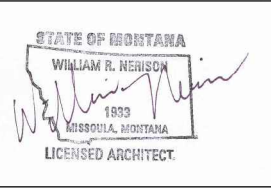
**Montana Fish,
Wildlife & Parks**

A New Isolation Building Facility
Washoe Park Trout Hatchery

FWP Project #7153604

Re-bid August 2017

[illegible]



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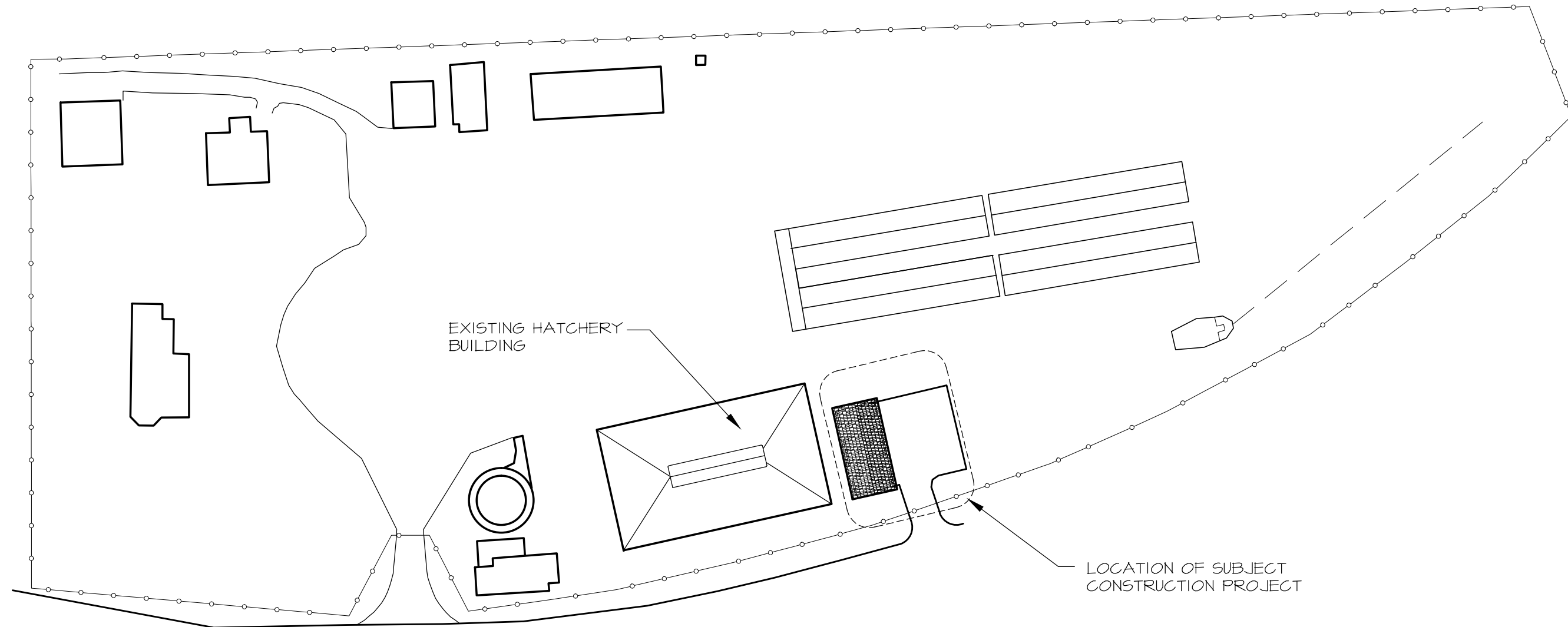
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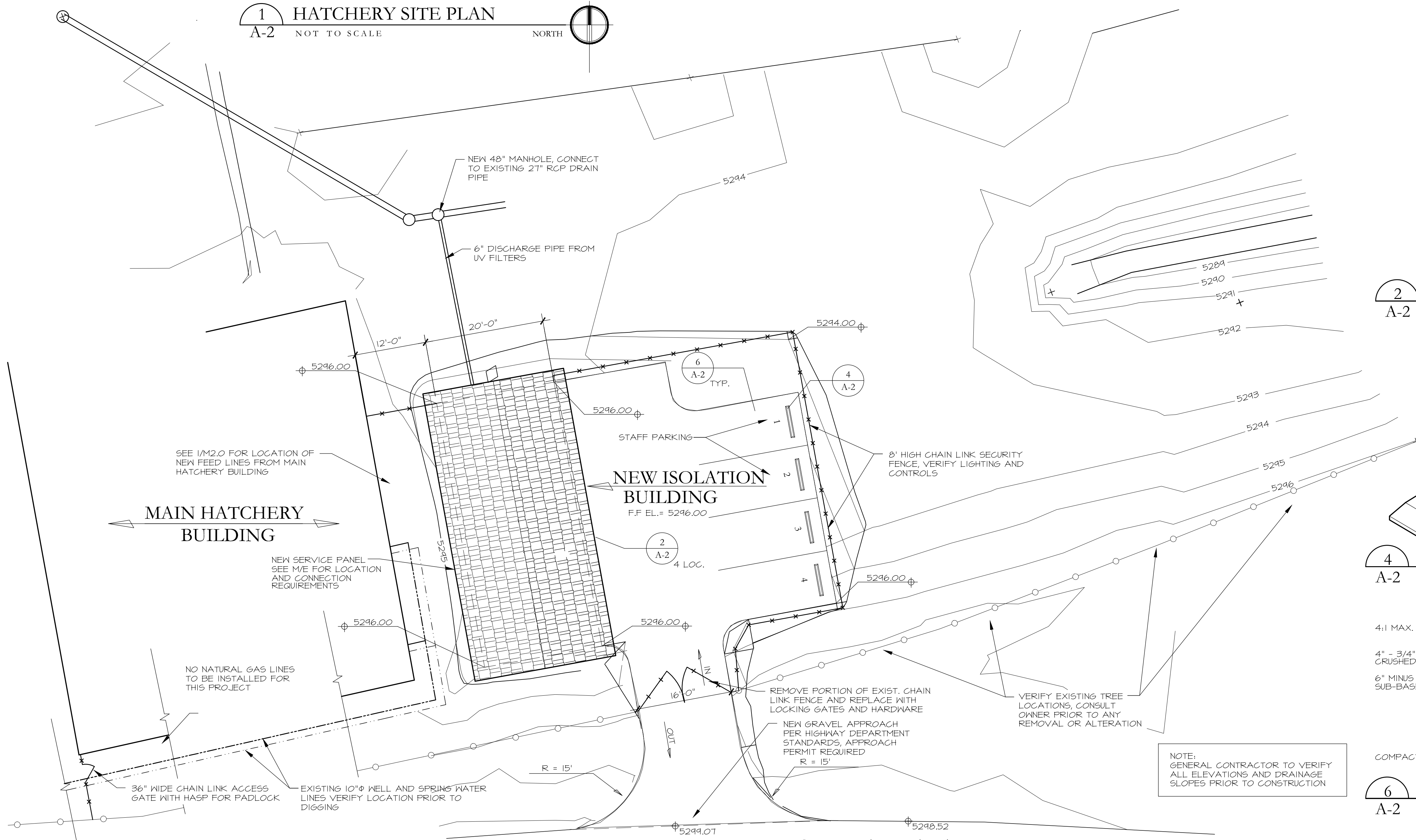
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SITE PLAN

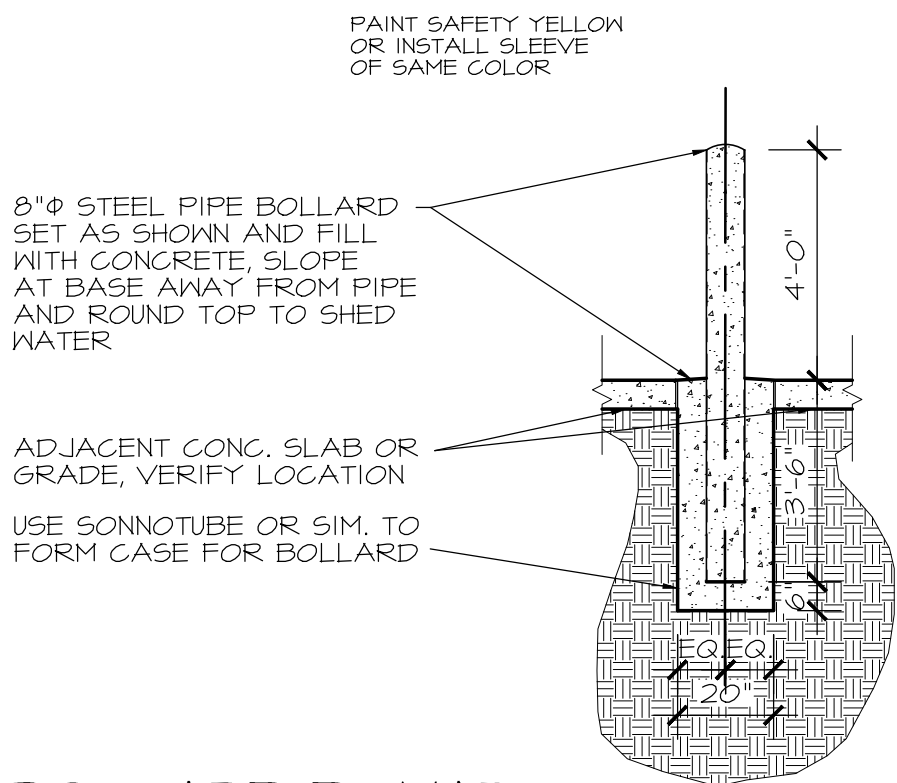
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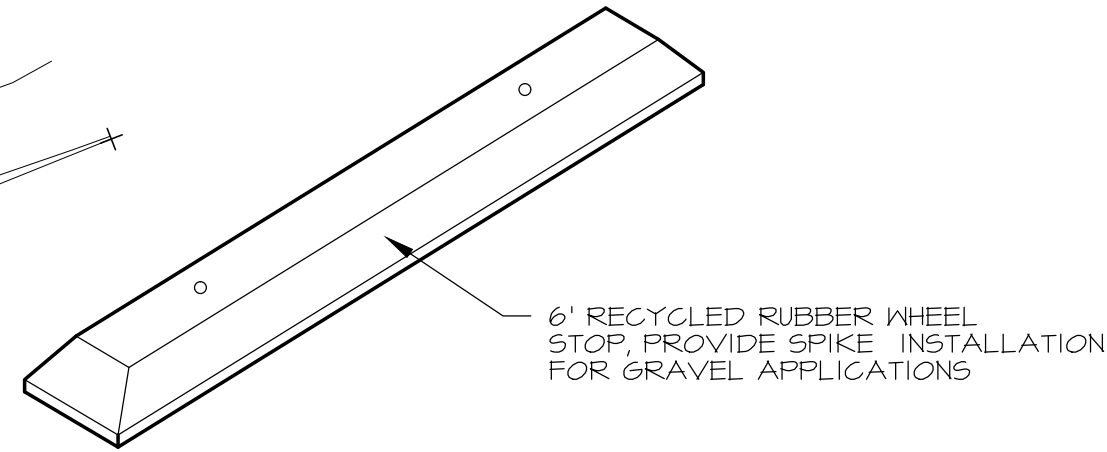
1 HATCHERY SITE PLAN
A-2 NOT TO SCALE



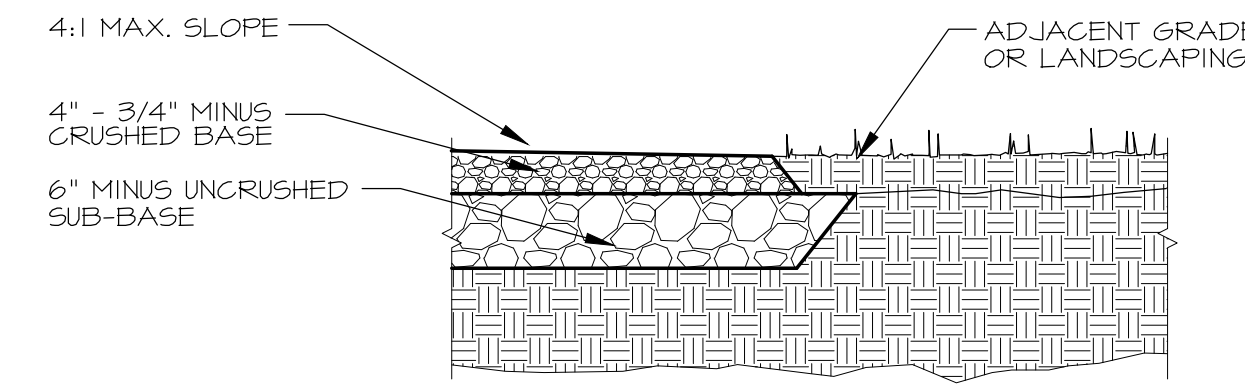
3 PROJECT SITE PLAN
A-2 SCALE: 1" = 10'-0"



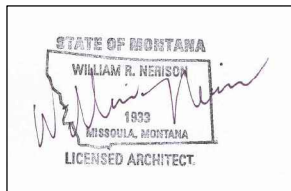
2 BOLLARD DETAIL
A-2 SCALE: 1" = N.T.S.



4 WHEEL STOP
A-2 SCALE: 1" = N.T.S.



6 FINISH GRADING
A-2 SCALE: 1" = N.T.S.



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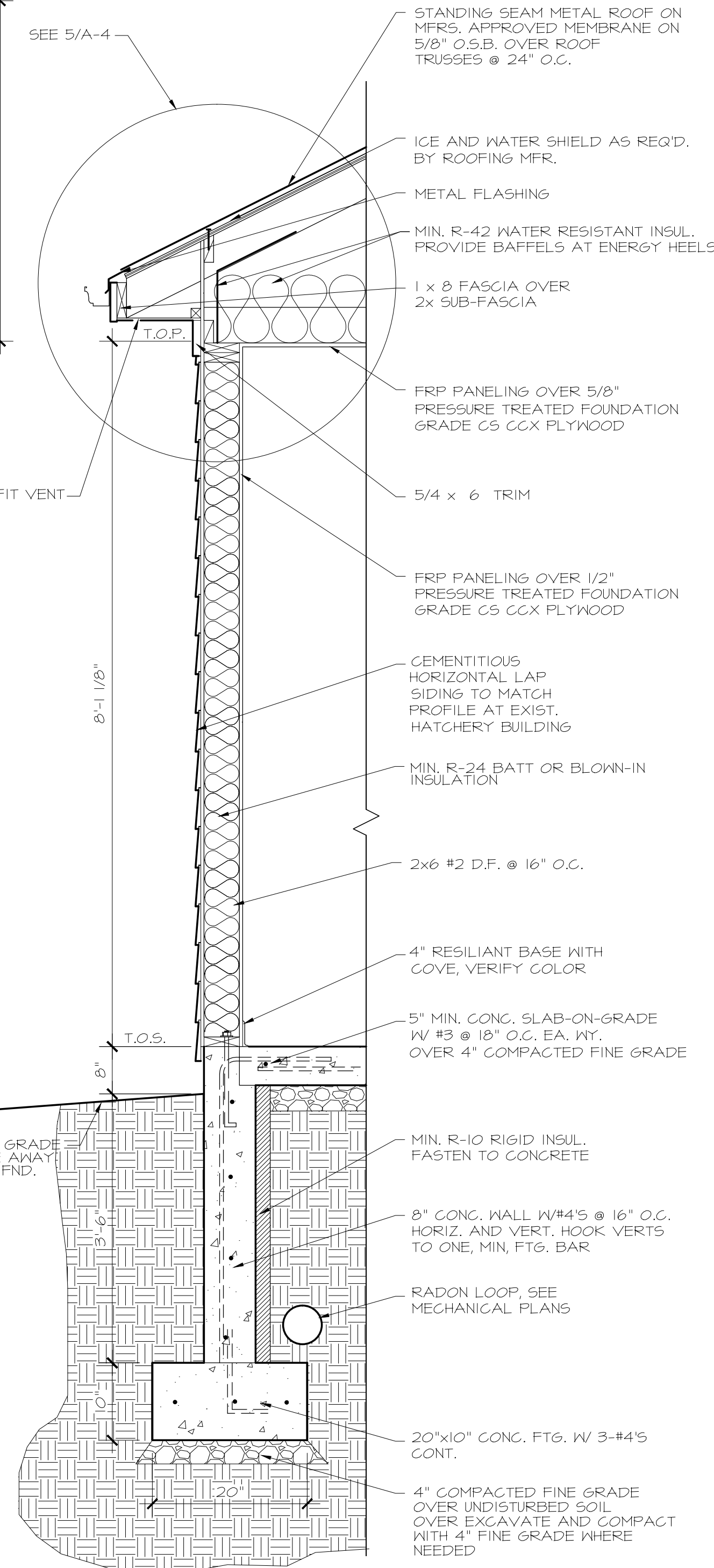
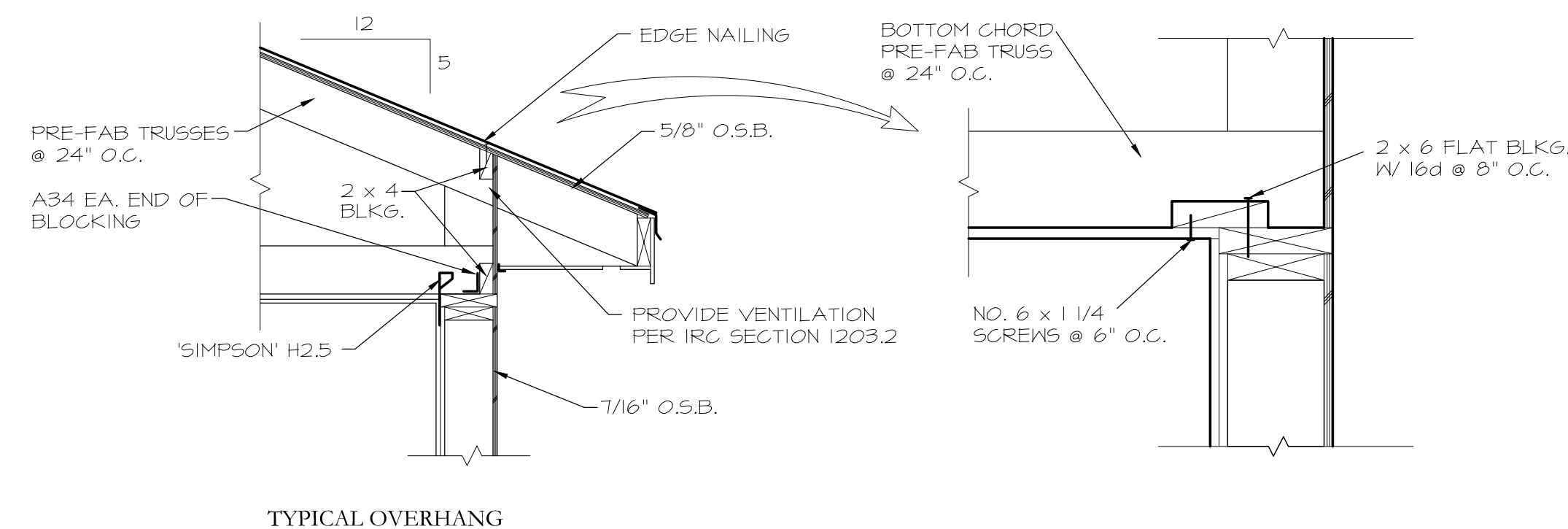
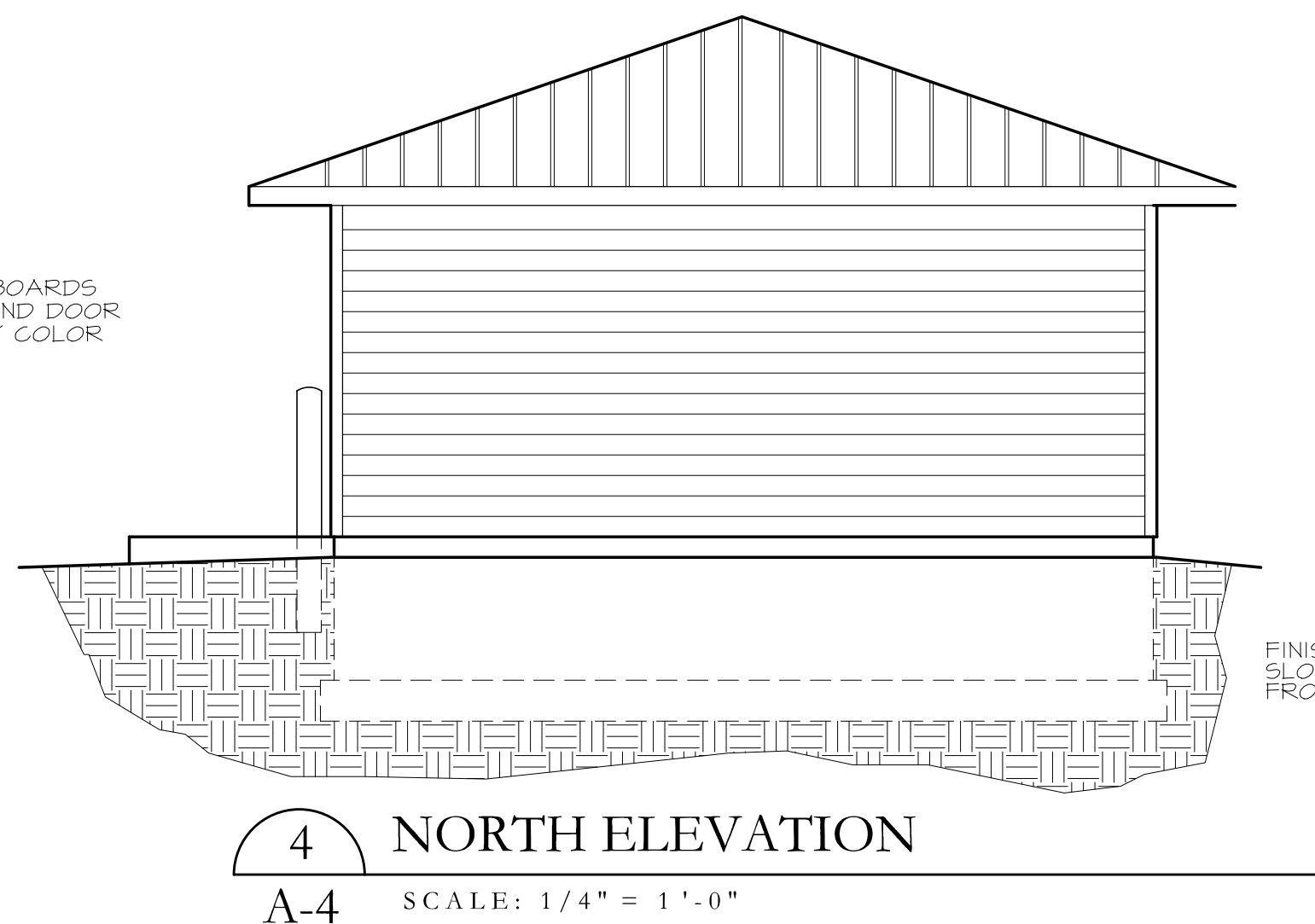
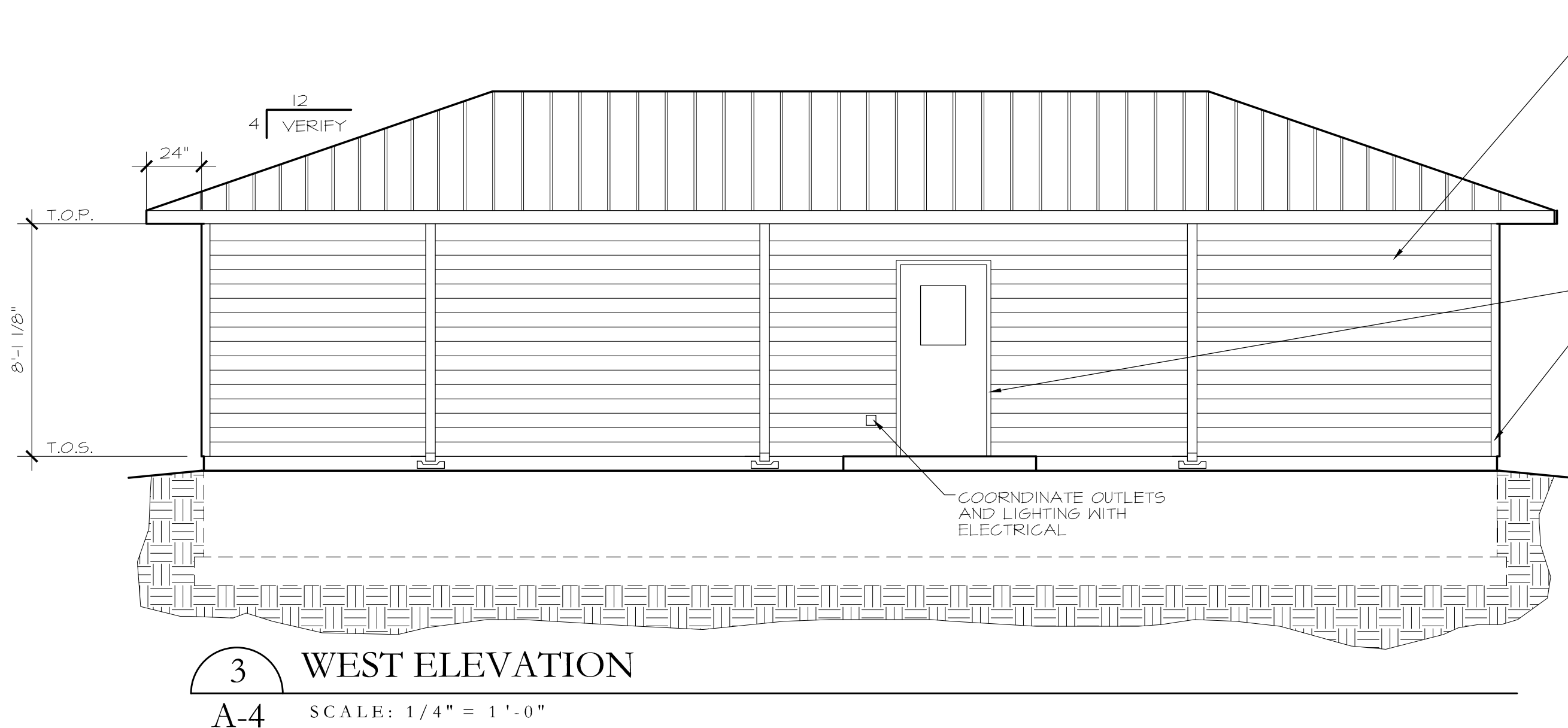
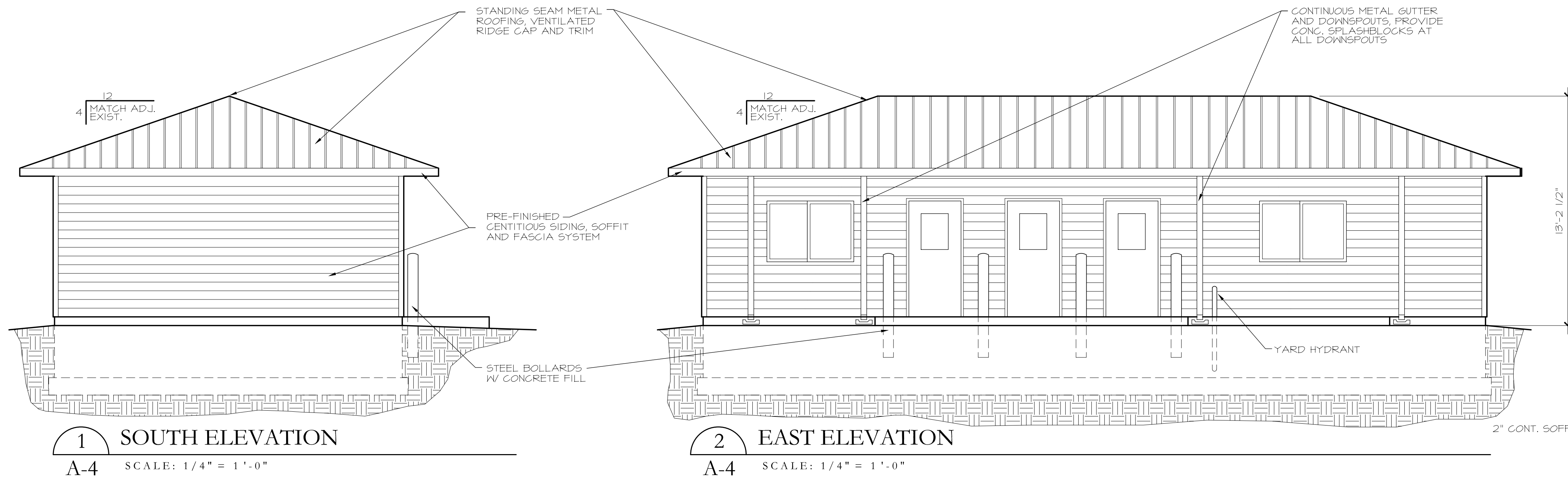
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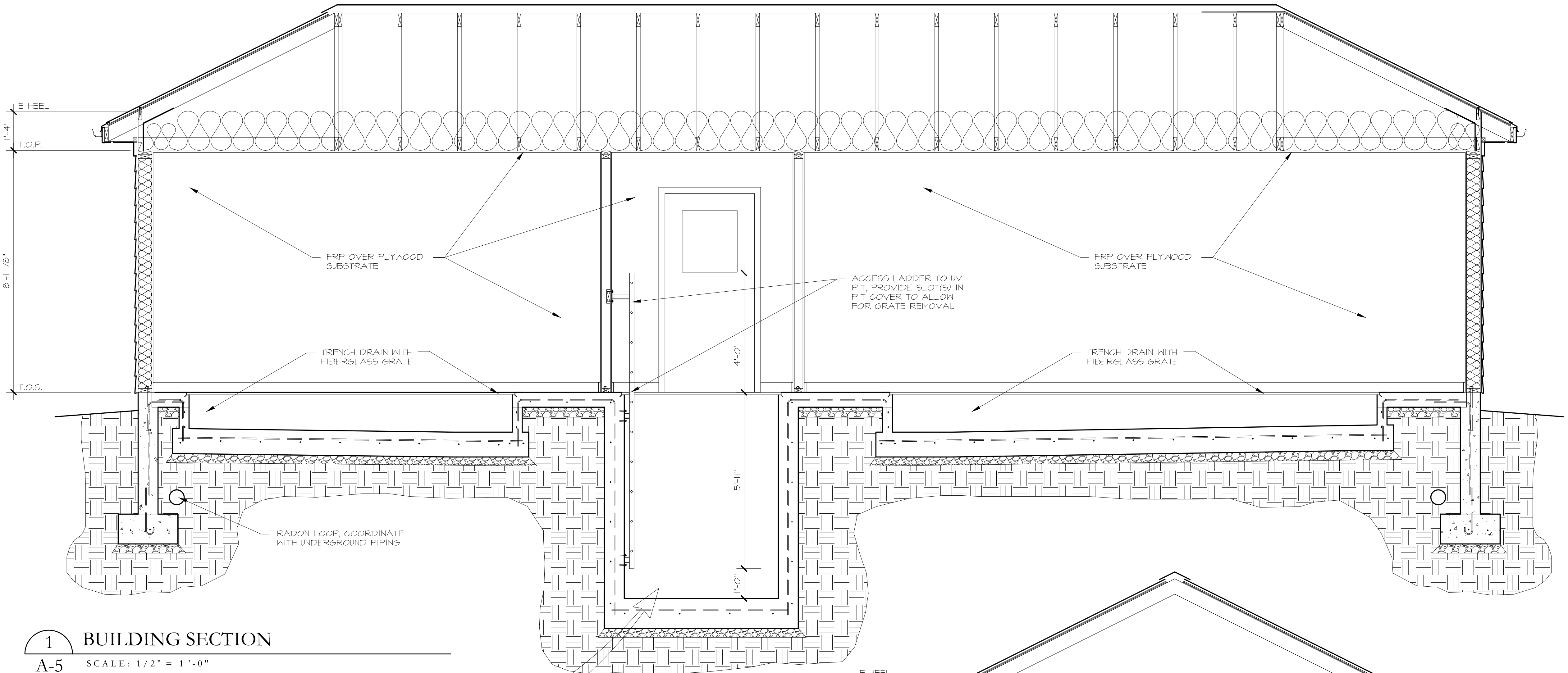
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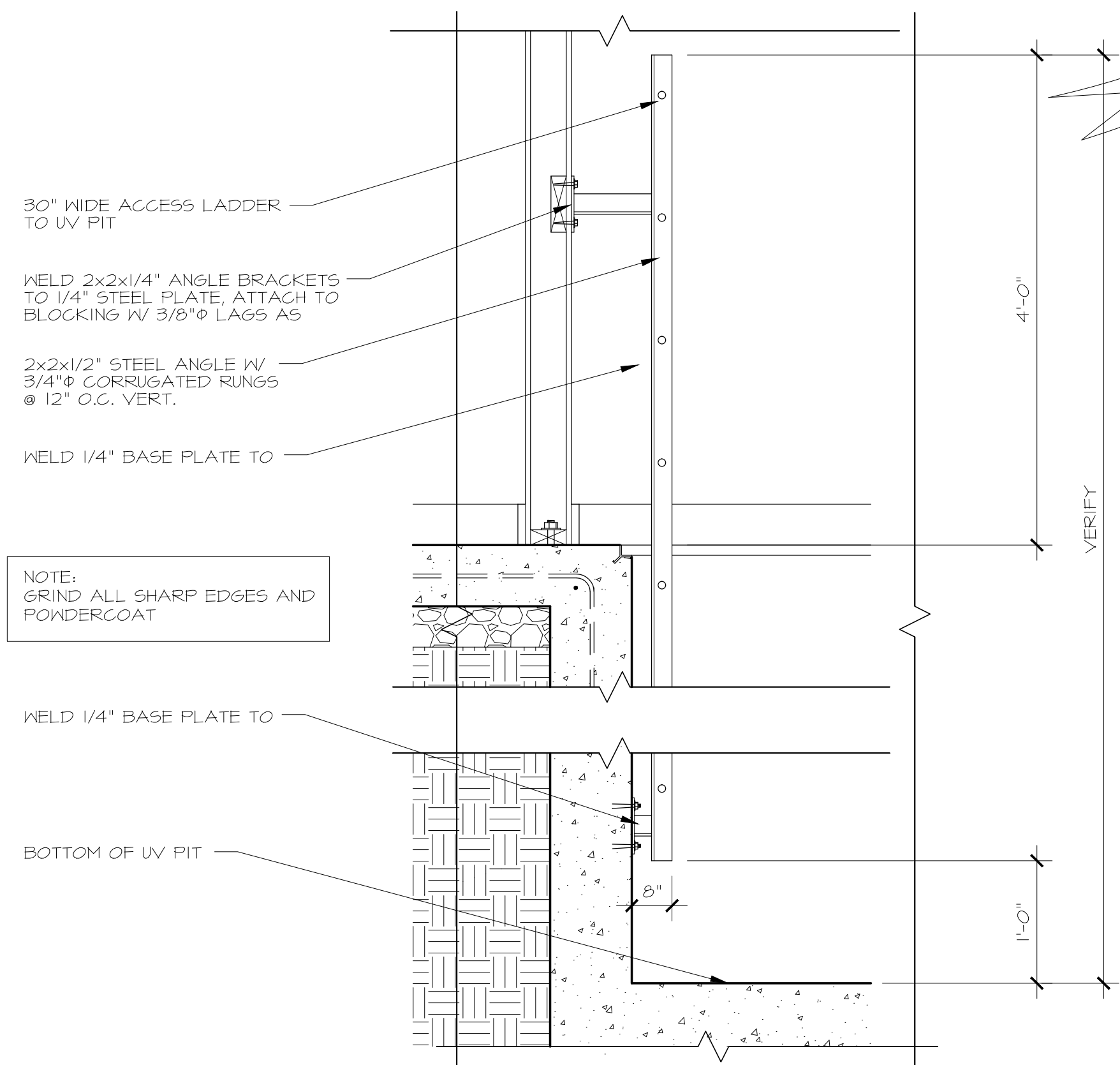
EXTERIOR ELEVATIONS
TYPICAL WALL SECTION

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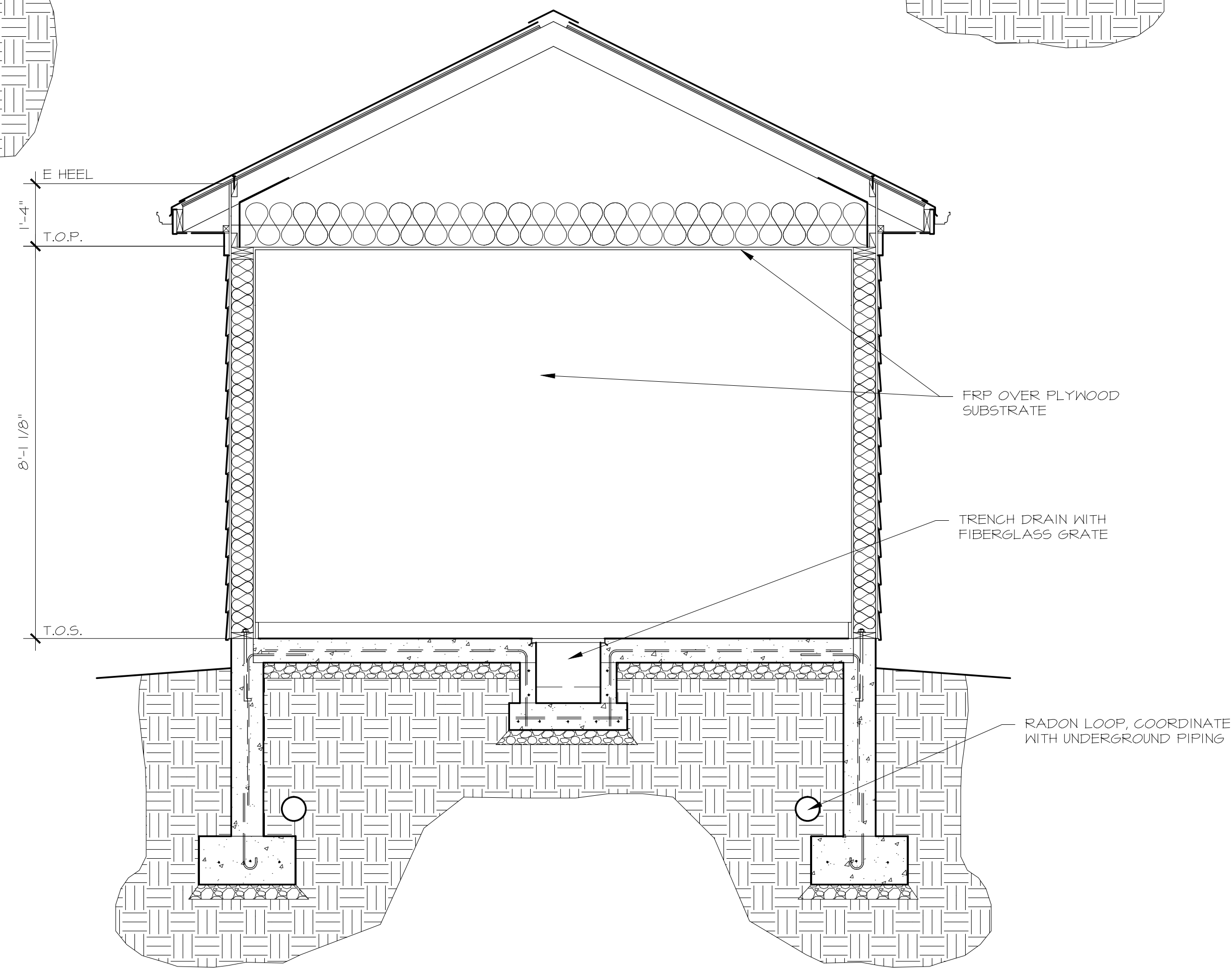




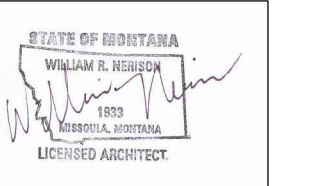
1 BUILDING SECTION
A-5 SCALE: 1/2" = 1'-0"



3 UV PIT LADDER
A-5 SCALE: 1/2" = 1'-0"



5 BUILDING SECTION
A-5 SCALE: 1/2" = 1'-0"



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BUILDING SECTIONS

PLUMBING LINE KEY	
— 3" SAN —	SANITARY SEWER ABOVE GRADE
----- 3" SAN -----	SANITARY SEWER BELOW GRADE
— 2" V —	SEWER VENT ABOVE GRADE
----- 2" V -----	SEWER VENT BELOW GRADE
— 3" G-SAN —	GREASE SANITARY SEWER ABOVE GRADE
----- 3" G-SAN -----	GREASE SANITARY SEWER BELOW GRADE
— 1" DCW —	DOMESTIC COLD WATER UNDER ABOVE GRADE
----- 1" DCW -----	DOMESTIC COLD WATER BELOW GRADE
— 1" DHW —	DOMESTIC HOT WATER ABOVE GRADE
— 1" DHWR —	DOMESTIC HOT WATER RECIRCULATED
— 1" NG —	NATURAL GAS ABOVE GRADE
----- 1" NG -----	NATURAL GAS BELOW GRADE
— 1" LP —	LP GAS ABOVE GRADE
----- 1" LP -----	LP GAS BELOW GRADE

HVAC DUCTING KEY	
12"x10" SA	RECTANGULAR SUPPLY AIR DUCT
12"x10" RA	RECTANGULAR RETURN AIR DUCT
12"x10" EX	RECTANGULAR EXHAUST DUCT
12"x10" OA	RECTANGULAR OUTSIDE AIR DUCT
12"x10" TA	RECTANGULAR TRANSFER AIR DUCT
12"x10" GE	RECTANGULAR GREASE EXHAUST DUCT
12"x10" MP	RECTANGULAR MEDIUM PRESSURE DUCT
12"x10"	RECTANGULAR DUCT (NON-SPECIFIC-REFER TO SYSTEM)
12"x10"	SPECIFICALLY LINED RECTANGULAR DUCT
Ø	ROUND DUCT-REFER TO SYSTEM SERVED
Ø	ROUND LINED OR DOUBLE WALL DUCT

DUCTWORK SYMBOLS KEY	
	SECTION THROUGH RETURN OR EXHAUST AIR
	SECTION THROUGH SUPPLY OR OUTSIDE AIR DUCT
	SUPPLY, RETURN, EXHAUST, OR OUTSIDE AIR DUCT
	ACCESS DOOR (BOTTOM OR SIDE)
	ACOUSTICALLY LINED DUCT
	DAMPER, FIRE
	DAMPER, MANUAL VOLUME
	INCLINED DROP IN DIRECTION OF ARROW
	INCLINED RISE IN DIRECTION OF ARROW
	TRANSITION, RECTANGULAR TO ROUND
	FLEXIBLE DUCT
	TRANSITION OR OFFSETTING TRANSITION
	TRANSITION, RECTANGULAR
	HIGH EFFICIENCY TAKEOFF WITH DAMPER
	CEILING SUPPLY AIR DIFFUSER ##
	SIDEWALL SUPPLY AIR REGISTER ##
	ELBOW TURNED DOWN
	ELBOW TURNED UP
	ELBOW, RADIUS TYPE
	ELBOW, SQUARE OR RECTANGULAR TYPE WITH 22 GA SINGLE TURNING VANES
	RETURN OR EXHAUST AIR DUCT
	CEILING RETURN AIR REGISTER ##
	SIDEWALL RETURN AIR REGISTER ##
	OPEN END DUCT
	FLEXIBLE CONNECTION

ELECTRICAL HARDWARE

CONDUIT & RACEWAYS SHALL BE CONCEALED AND APPROVED FOR USE AND LOCATION.

DRY LOCATIONS - GRC, IMC, EMT.
UNDERGROUND - GRC, PVC.
FLEXIBLE CONDUIT - ALLOWED ONLY FOR CONNECTION OF EQUIPMENT AND LIMITED TO LENGTHS OF SIX FEET. GALVANIZED, LIQUID TIGHT. MC OR AC ALLOWED WHEN PROTECTED.
PROVIDE SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN CONDUIT.
- NOT ALLOWED.

NM-B CABLE

JUNCTION AND PULL BOXES:
DRY LOCATIONS - STEEL WITH COVERS.
WET LOCATIONS - CAST ALUMINUM.
SIZE PER NEC.

COUPLINGS AND CONNECTORS:

GRC - THREADED
IMC - THREADED
EMT - DRY-COMPRESSION OR SET SCREW, BOTH OF STEEL, WET-RAIN TIGHT
PVC - CEMENT JOINT TYPE
INDENTER TYPE CONNECTORS PROHIBITED.

CABELING DEVICES AND PLATES:

DUPLX OUTLETS - HUBBELL #CR20 SERIES, 20 AMP (OR APPROVED EQUAL)
GFCI OUTLETS - HUBBELL #GF20 SERIES, 20 AMP (OR APPROVED EQUAL)
AC SWITCHES - HUBBELL #CS120 SERIES (OR APPROVED EQUAL)
FOR 3 WAY OR 4 WAY USE EQUIVALENT
- COORDINATE COLOR W/ OWNER OR ARCHITECT
DEVICE COLOR - NYLON. COORDINATE COLOR W/ OWNER OR ARCHITECT
PLATES - HUBBELL #WS120W (OR APPROVED EQUAL)
OCCUPANCY SENSORS

ANCHORS:
HOLLOW MASONRY - TOGGLE BOLT.
SOLID MASONRY - EXPANSION BOLT.
STEEL - METAL MACHINE SCREWS, BOLTS.
WOOD - WOOD SCREWS.

P.C. PLUMBING CONTRACTOR
M.C. MECHANICAL CONTRACTOR
E.C. ELECTRICAL CONTRACTOR

MOUNTING HEIGHTS

DESCRIPTION	HEIGHT UNLESS OTHERWISE NOTED
THERMOSTAT, CONTROLLER	48"
WALL SWITCH/ OCCUPANCY SENSOR	46"
CONVENIENCE OUTLET	18"
WALL SWITCHES	46"
TELEPHONE/DATA/TV OUTLETS	18"
FIRE ALARM MANUAL STATION	42"
FIRE ALARM HORNS & STROBES	90" A/F F-6" BELOW CEILING
EXIT SIGN	CENTER, 4" ABOVE DOOR
MANUAL MOTOR STARTER SWITCH	42"
PANELBOARDS, CABINETS	72"

MOUNTING HEIGHTS TO TOP OF BOX AND ABOVE FINISHED FLOOR GRADE UNLESS NOTED OTHERWISE. MATCH EXISTING MOUNTING HEIGHTS WHICH COMPLY WITH ADA REQUIREMENT.

BASIC MECHANICAL/ELECTRICAL/PLUMBING REQUIREMENTS

FURNISH ALL LABOR AND MATERIALS AND PERFORM ALL OPERATIONS NECESSARY FOR THE INSTALLATION OF COMPLETE AND OPERATING MECHANICAL/ELECTRICAL SYSTEMS SUBJECT TO THE CONDITIONS OF THE CONTRACT. PROVIDE SATISFACTORY OPERATION OF ALL EQUIPMENT AND CONTROLS TO THE ARCHITECT/ENGINEER UPON REQUEST.

ALL MATERIALS SHALL BE NEW. SUBSTITUTIONS SHALL BE APPROVED BY OWNER AND/OR ENGINEER.

VISIT THE PREMISES BEFORE SUBMITTING BID AS NO CHANGE ORDERS WILL BE ALLOWED FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

COORDINATE AND ORDER THE PROGRESS OF WORK TO CONFORM TO THE PROJECT SCHEDULE AND THE PROGRESS OF THE WORK OF THE OTHER TRADES.

MECHANICAL/ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND BECAUSE OF THE SMALL SCALE, IT IS NOT POSSIBLE TO INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. VERIFY ALL SPACE REQUIREMENTS, COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.

PERFORM WORK IN ACCORDANCE WITH GOOD COMMERCIAL PRACTICE. THE GOOD APPEARANCE OF THE FINISHED WORK SHALL BE OF EQUAL IMPORTANCE WITH ITS MECHANICAL/ELECTRICAL EFFICIENCY AND INTENT. THE OWNER MAY REJECT WORK IF WORKMANSHIP AND APPEARANCE ARE NOT SATISFACTORY.

INSTALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE, OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AND ORDINANCES. COMPLY WITH REQUIREMENTS OF THE UTILITY COMPANIES. IN THE CASE OF DIFFERENCES BETWEEN THESE REQUIREMENTS AND ORDINANCES, THE MOST STRINGENT SHALL GOVERN. CALL FOR INSPECTIONS REQUIRED BY LOCAL BUILDING INSPECTION AUTHORITY.

PLANS AND SPECIFICATIONS GO HAND IN HAND. WHAT IS REQUIRED IN ONE IS REQUIRED IN BOTH. WHERE CONFLICTS BETWEEN SPECIFICATIONS AND PLANS EXIST, THE MOST STRINGENT REQUIREMENTS SHALL APPLY.

MECHANICAL/ELECTRICAL PLANS SUPERCEDE ARCHITECTURAL PLANS. BACKGROUND FLOOR PLANS USED FOR MECHANICAL/ELECTRICAL DRAWINGS MAY SHOW DIFFERENT THAN THE FINAL ARCHITECTURAL LAYOUT. REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL DIMENSIONS AND LAYOUT PLACEMENTS FOR SPACE CONDITIONS.

MECHANICAL AND ELECTRICAL DETAILS MAY OR MAY NOT BE DIRECTLY REFERENCED. ALL DETAILS SHOWN ARE TO BE USED FOR BASIS OF INSTALLATION IN ALL CASES, IN COORDINATED EFFORT WITH MANUFACTURERS INSTALLATION RECOMMENDATIONS.

MECHANICAL SHEETS ARE NOT INTENDED TO SPECIFICALLY BE TRADE SPECIFIC TO MECHANICAL INSTALLATION WORK. ELECTRICAL SHEETS ARE NOT INTENDED TO SPECIFICALLY BE TRADE SPECIFIC TO ELECTRICAL INSTALLATION WORK. ALL MECHANICAL AND ELECTRICAL TRADES ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES AND INCLUDING A COMPLETE PACKAGE WITHIN THEIR OFFER FOR A COMPLETE SYSTEM.

AT COMPLETION OF WORK, DELIVER COMPLETED PROJECT RECORD DOCUMENTS MARKED WITH FIELD CHANGES TO OWNER.

PROVIDE A WRITTEN WARRANTY TO THE OWNER COVERING THE ENTIRE ELECTRICAL/MECHANICAL WORK TO BE FREE FROM DEFECTIVE MATERIALS. EQUIPMENT AND WORKMANSHIP FOR A PERIOD OF 1 YEAR AFTER DATE OF ACCEPTANCE.

CLEAN EXPOSED SURFACES OF LIGHT FIXTURES, SWITCHGEAR, FURNACES, HOT WATER HEATERS, PLUMBING FIXTURES AND OTHER EXPOSED ITEMS OF GREASE, DIRT OR OTHER FOREIGN MATERIAL. REMOVE RUBBISH AND DEBRIS RESULTING FROM THE OPERATIONS AND LEAVE EQUIPMENT SPACES CLEAN AND READY FOR USE.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	DUPLX OUTLET, STANDARD HEIGHT/COORD ELEV.
	DOUBLE DUPLX RECEPTACLE
	GROUND FAULT CIRCUIT INTERRUPTER OUTLET
	220 VOLT RECEPTACLE
	WEATHER PROOF OUTLET WITH COVER W/ GFCI
	DUPLX OUTLET, ELEVATION CALLOUT
	JUNCTION BOX
	BRANCH CIRCUIT PANEL
	FUSED DISCONNECT SWITCH
	COMBINATION MOTOR STARTER / DISCONNECT
	STARTER/CONTACTOR
	THERMOSTAT
	SWITCH, WIND UP TIMER
	SWITCH, PILOT DUTY/CONTROL LEG CONTACTOR
	SWITCH, SPST
	SWITCH, SPDT
	SWITCH, 3-WAY
	SWITCH, 4-WAY
	SWITCH, OCCUPANCY SENSOR-DUAL TECHNOLOGY
	SWITCH, OCCUPANCY SENSOR-MOTION DETECTOR
	OCCUPANCY SENSOR, CEILING
	SWITCH, PHOTOCELL WITH REMOTE CONTROLLER
	SWITCH, OCCUPANCY SENSOR-DUAL TECHNOLOGY
	FIRE ALARM STROBE
	FIRE ALARM HORN/STROBE
	FIRE ALARM SMOKE DETECTOR
	FIRE ALARM HEAT SENSOR
	FIRE ALARM DUCT SMOKE DETECTOR
	FIRE ALARM PULL STATION
	FIRE ALARM DOOR HOLD
	EXIT LIGHT FIXTURE
	EXIT LIGHT FIXTURE WITH DIRECTIONAL ARROW
	EMERGENCY LIGHT FIXTURE WITH EXIT SIGN
	EMERGENCY LIGHT FIXTURE
	TELEPHONE/DATA OUTLET
	TELEPHONE OUTLET
	CEILING LIGHT OUTLET
	WALL LIGHT OUTLET
	CIRCUIT HOMERUN
(E)	REPRESENTS EXISTING CONDITION

MAINTAIN ALL CEILING, FLOOR AND WALL FIRE AND SMOKE PROTECTION RATINGS. SEAL ALL CONDUIT AND ENCLOSURE PENETRATIONS TO COMPLY WITH UL ASSEMBLY AND BUILDING CODE REQUIREMENTS. ALL SEALANTS AND CONSTRUCTIONS SHALL BE APPROVED BY OWNER PRIOR TO APPLICATION. ALL OPENINGS SHALL BE SEALED DAILY.

CONTRACT DRAWINGS FOR MECHANICAL/ELECTRICAL WORK ARE IN PART DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, CONDUITS, AND APPROXIMATE SIZES AND LOCATIONS OF EQUIPMENT AND OUTLETS. MECHANICAL/ELECTRICAL TRADES SHALL FOLLOW THESE DRAWINGS IN LAYING OUT THEIR WORK. CONSULT GENERAL CONSTRUCTION DRAWINGS TO FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THEIR WORK, AND SHALL VERIFY SPACES IN WHICH THEIR WORK WILL BE INSTALLED. COORDINATE WORK WITH OTHER TRADES AND AS PROJECT CONDITIONS REASONABLY REQUIRE WITHOUT EXTRA COSTS TO OWNER.

ELECTRICAL SPECIFIC:
RACEWAYS SHALL BE LEFT WITH 30% FREE SPACE FOR FUTURE NEEDS.

SHARING OF NEUTRALS BETWEEN PHASES SHALL NOT BE ALLOWED.

SEPARATE GROUNDING CONDUCTORS SHALL BE PROVIDED IN ALL RACEWAYS.

CONDUCTORS SHALL BE COPPER. COLOR CODING SHALL BE NEC APPROVED AND AT MINIMUM SHALL BE AS FOLLOWS:
120/208 VOLT-BLACK, RED, BLUE FOR PHASE CONDUCTORS, WHITE FOR NEUTRAL CONDUCTORS, 277/480 VOLT-BROWN, ORANGE, YELLOW FOR PHASE CONDUCTORS, GRAY FOR NEUTRAL CONDUCTORS. GROUNDING CONDUCTORS SHALL BE GREEN.

ELECTRICAL SYSTEMS SHALL COMPLY WITH 2014 NATIONAL ELECTRICAL CODE AND BE INSTALLED BY LICENSED CONTRACTORS. LIGHTING SHALL COMPLY WITH THE 2012 IECC.

HVAC SPECIFIC:
ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.

PROVIDE ALL 90 DEGREE SQUARE ELBOWS WITH SINGLE RADIUS TURNING VANES UNLESS OTHERWISE INDICATED.

COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING ITEMS AND MAKE DUCT MODIFICATIONS TO SUIT.

AT CONTRATORS OPTION, FLEXIBLE DUCT MAY BE USED TO CONNECT SUPPLY REGISTERS AND DIFFUSERS ON THIS PROJECT ONLY. RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED 5 FEET, UNLESS SPECIFICALLY SHOWN ON DRAWING.

ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

MECHANICAL SYSTEMS SHALL COMPLY WITH INTERNATIONAL MECHANICAL CODE VER 2012 AND INTERNATIONAL ENERGY CODE VER 2012.

PLUMBING/PIPING SPECIFIC:
PLUMBING/PIPING SYSTEMS SHALL COMPLY WITH INTERNATIONAL FUEL GAS CODE VER 2012 AND UNIFORM PLUMBING CODE VER 2012.

UTILITIES:
LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE EXACT LOCATIONS IN THE FIELD (NOT ALL UTILITIES ARE SHOWN).

REGULATORY AND CODE REQUIREMENTS:
APPLY FOR AND PAY FOR ALL PERMITS, FEES, LICENSES AND INSPECTIONS. ALL WORK IS SUBJECT TO APPROVAL BY THE CODE OFFICIAL AND ENGINEER. ALL CORRECTIONS SHALL BE MADE WITHOUT EXTRA COSTS TO OWNER.

GENERAL CONSTRUCTION NOTES

ALL WORK PERFORMED IN CONJUNCTION WITH THESE DRAWINGS SHALL MEET ALL CURRENT APPLICABLE BUILDING AND ENERGY CODES.

ALL WORK PERFORMED IN CONJUNCTION WITH THESE DRAWINGS IS SUBJECT TO APPROVAL BY THE AUTHORITY HAVING JURISDICTION (CODE OFFICIAL).

ALL ROOF PENETRATIONS SHALL BE PATCHED AND SEALED, WITH WARRANTY FROM BUILDING ROOFING CONTRACTOR.

ALL NEW AND ALTERED LIGHTING SHALL BE SECURELY FASTENED TO GRID AND SHALL BE SEISMICALLY SUPPORTED AS PER APPLICABLE BUILDING CODES.

THIS SET OF DOCUMENTS IS INTENDED FOR AHJ REVIEW AND SHALL BE CONSIDERED AS CONSTRUCTION DOCUMENTS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL CONDITIONS, EXISTING AND/OR NEW, OF THE SITE AS WELL AS LOCATIONS, QUANTITIES, TYPE AND STYLE OF ALL PRODUCTS PROVIDED, WITH OWNER, PRIOR TO ORDERING OR INSTALLING.

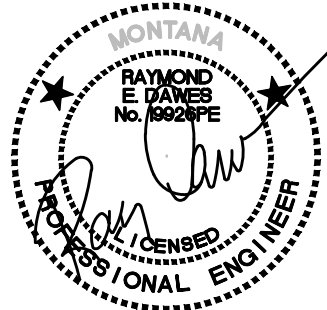
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WASHOE HATCHERY ADDITION

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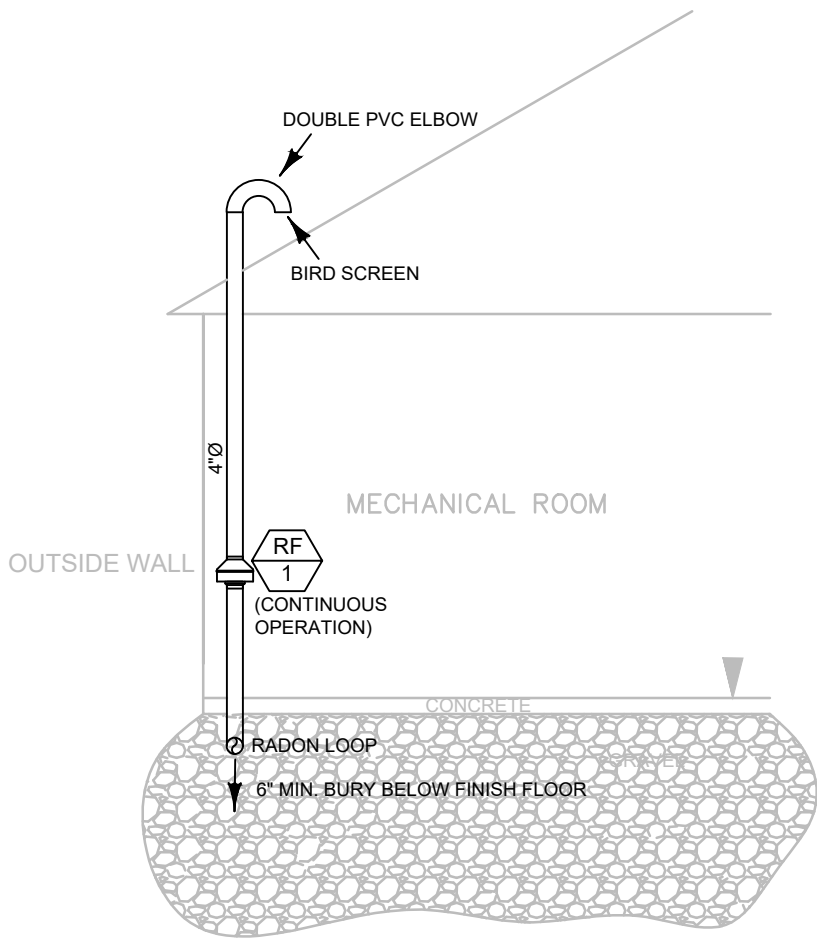
SHEET CONTENTS:

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MEP
COVER
SHEET

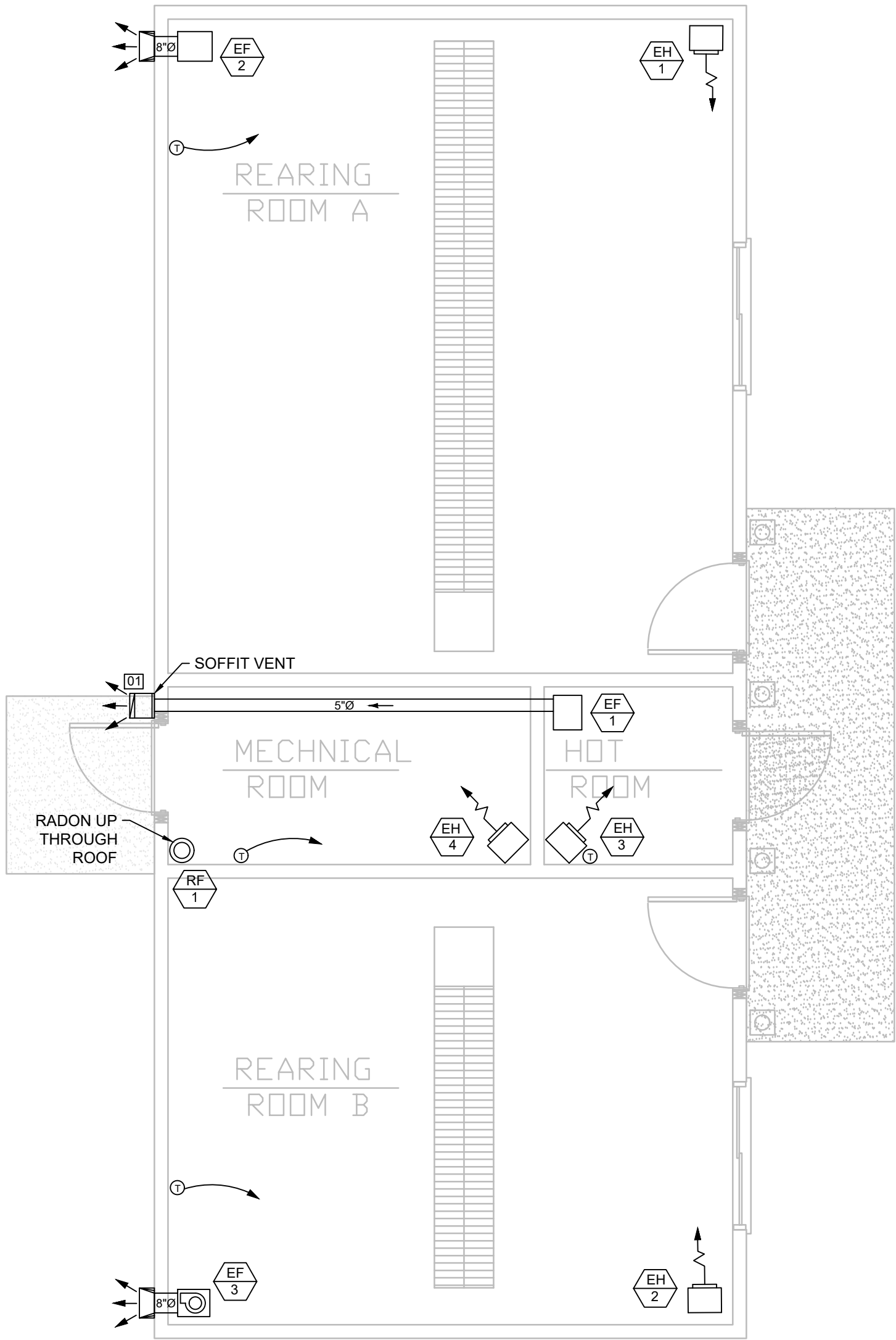
REV #
SHEET NUMBER

ME 0.0



1 HVAC SECTION VIEW - RADON VENTILATION
M1.0 SCALE: 1/4"=1'

GRD ID SCHEDULE			
TAG	STYLE	CFM	NECK SIZE
01	RG-1	-	10" X 10"



2 NEW HVAC FLOOR PLAN
M1.0 SCALE: 1/4"=1'

REBID SET

Dawes Engineering & Design

46 Hibbard Way
Helena, MT 59601

(406) 441-4000 p

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DAWES ENGINEERING & DESIGN

PROFESSIONAL ENGINEER

WASHOE HATCHERY ADDITION

600 W PENNSYLVANIA AVE
ANACONDA, MT 59711

SHEET CONTENTS

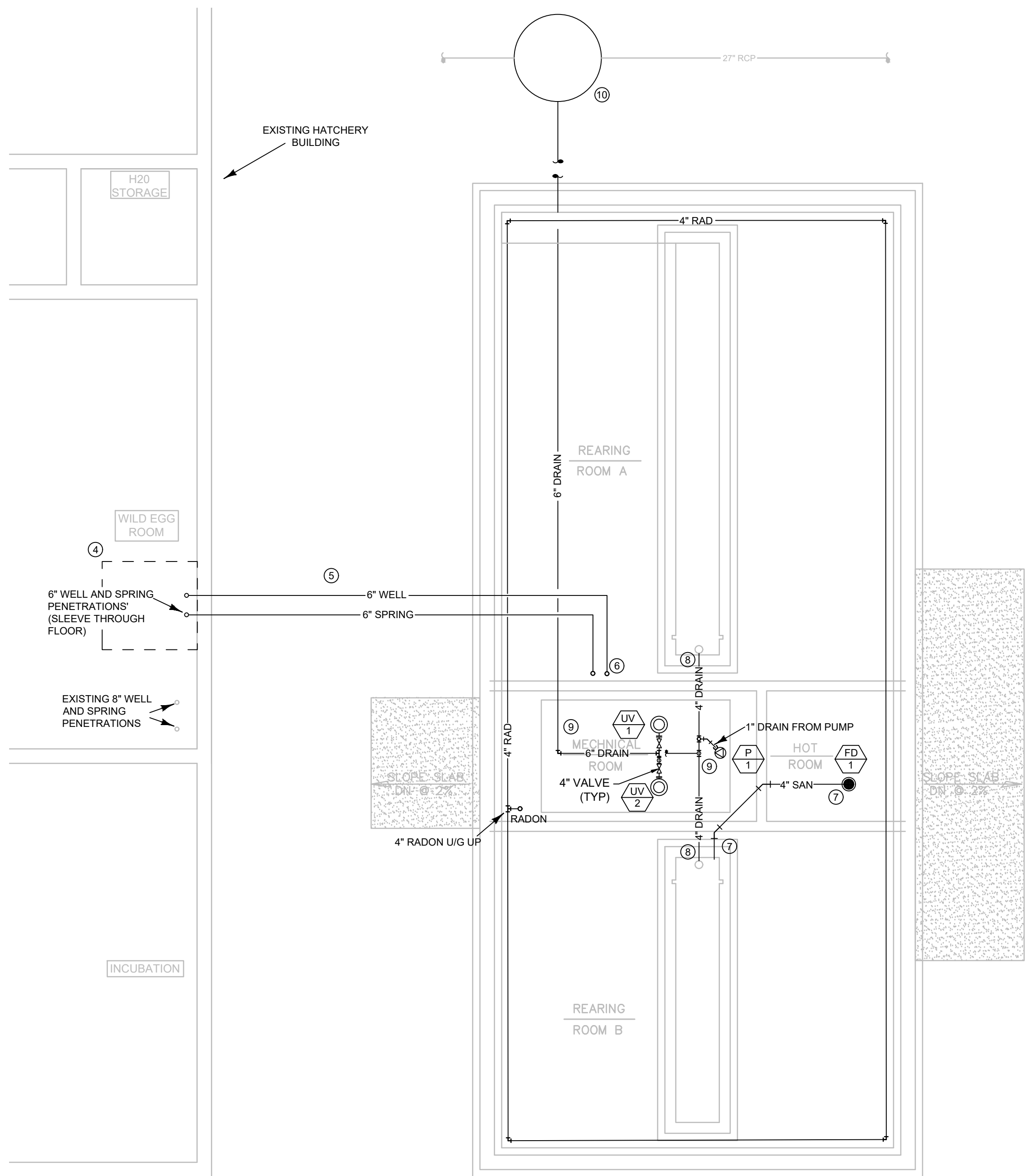
NEW HVAC PLAN

ISSUE DATE:
DATE: JULY 17, 2017
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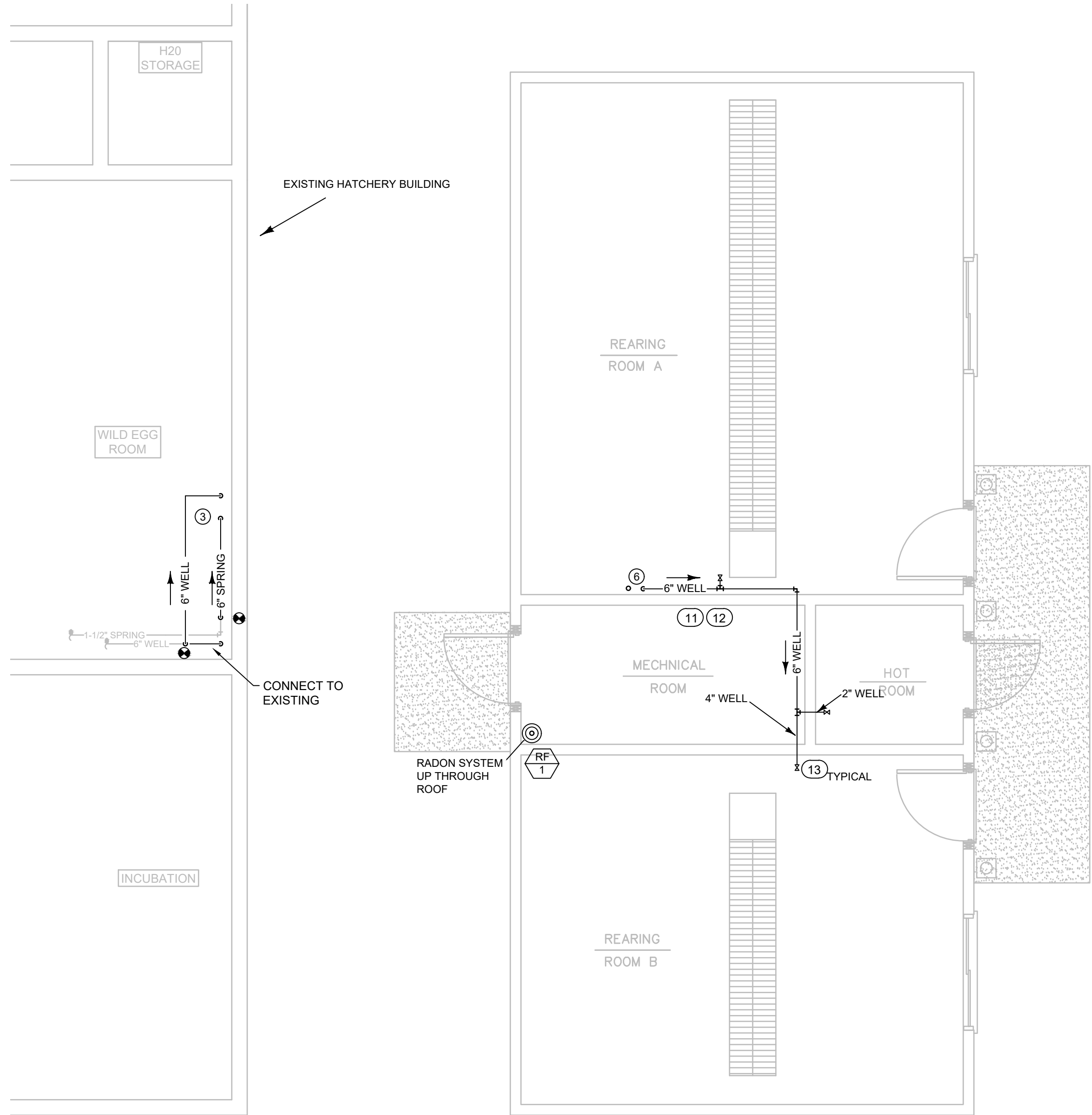
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SHEET NUMBER
M1.0

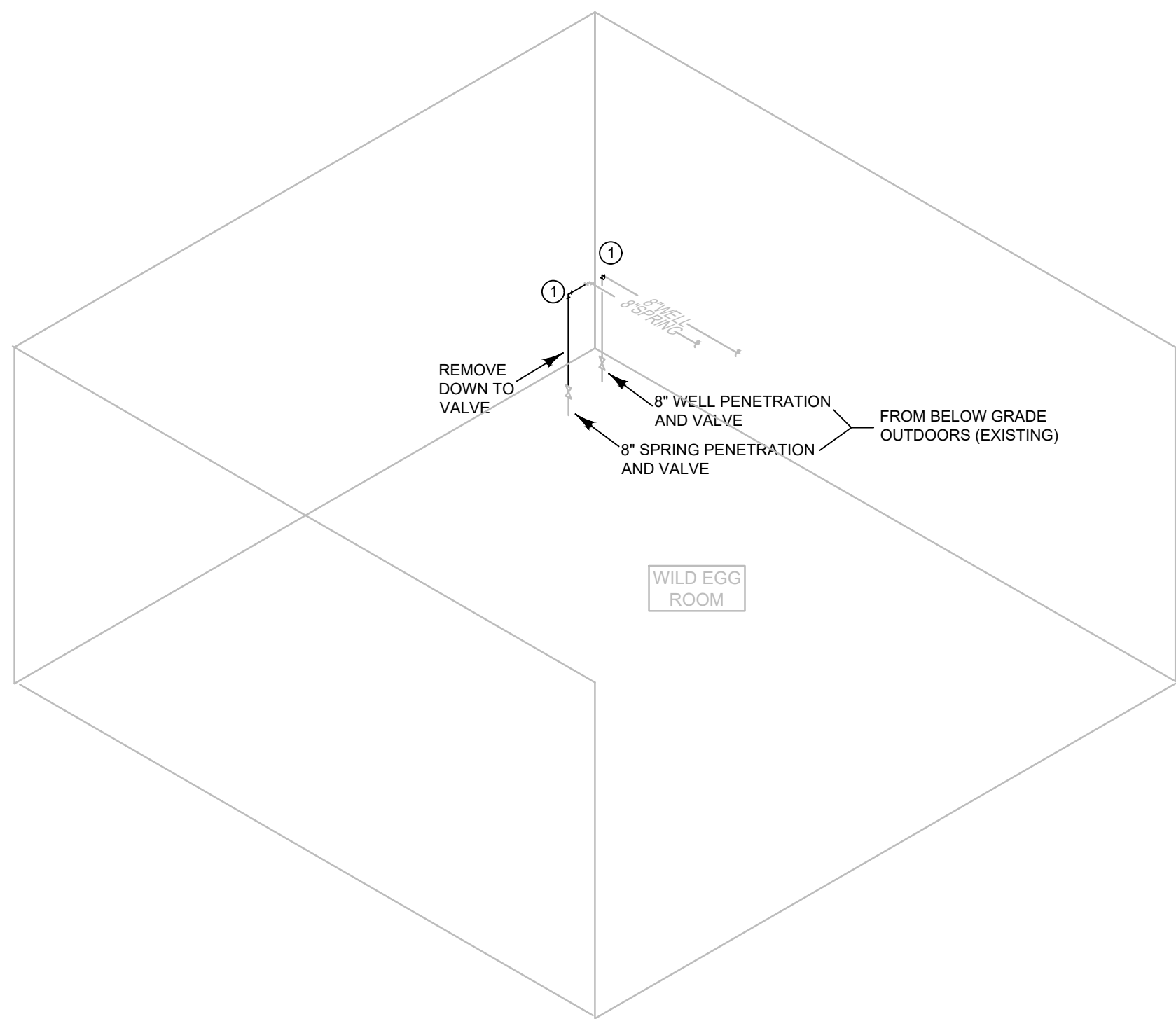


1
M2.0
NEW MECHANICAL PIPING FLOOR PLAN - BELOW GRADE
SCALE: 1/4"=1'

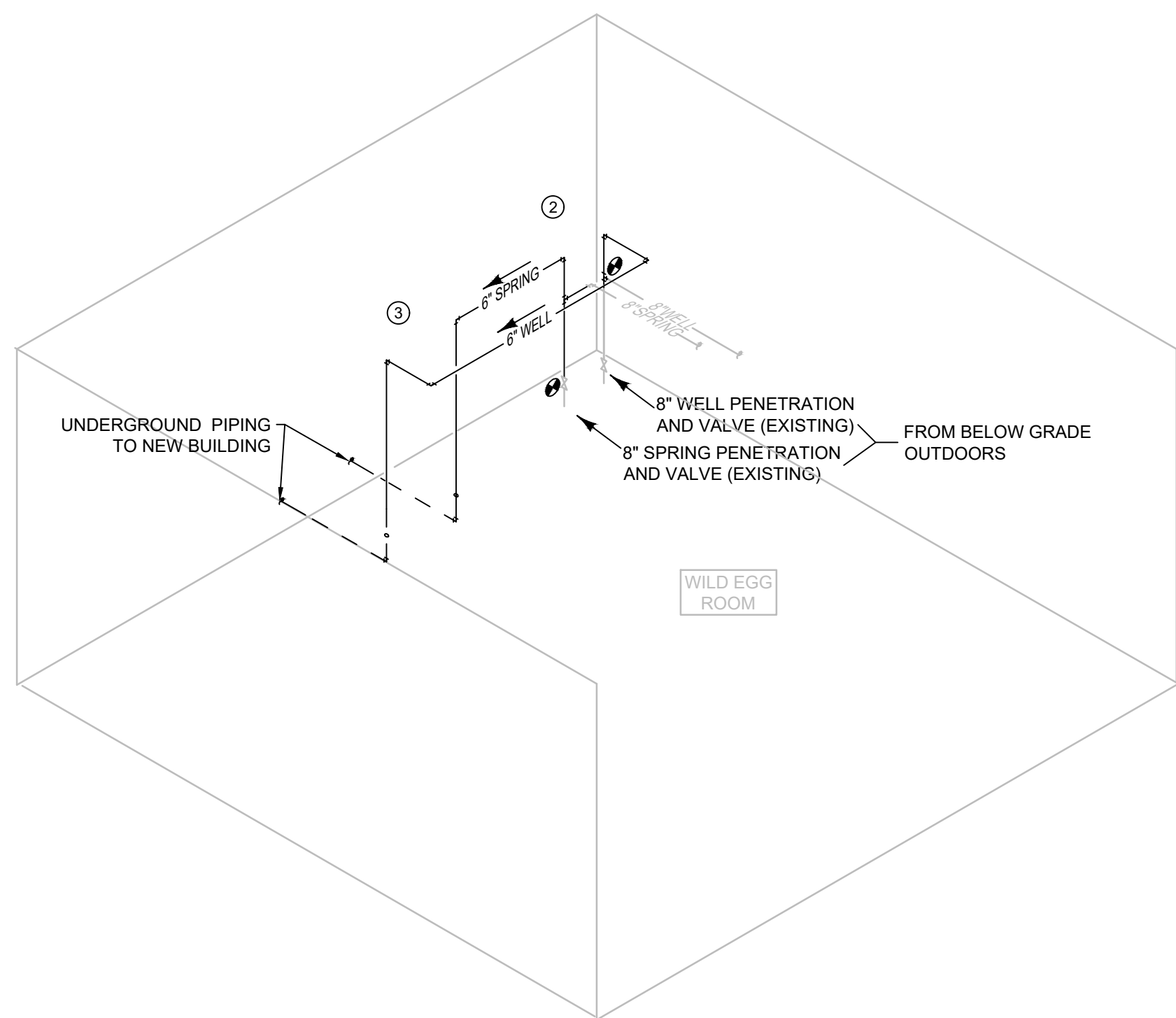


2
M2.0
NEW MECHANICAL PIPING FLOOR PLAN - ABOVE GRADE
SCALE: 1/4"=1'

- KEYED PLUMBING NOTES**
- 1 REMOVE ELBOW AND PREP FOR PIPING EXTENSION WITH A TEE.
 - 2 ADD PIPING AND FITTINGS SHOWN IN BOLD. REDUCERS NOT SHOWN FOR CLARITY. USE CONCENTRIC REDUCERS.
 - 3 INSTALL NEW 6" WELL AND SPRING PIPING MAX 5' AFF.
 - 4 CUT CONCRETE FLOOR FOR NEW 6" PIPING INSTALLED BELOW GRADE.
 - 5 INSTALL NEW 6" WELL AND SPRING LINES UNDERGROUND TO NEW REARING ROOM A. BED PIPING WITH SAND, BRIDGE WITH GRAVEL AND COMPACT BACKFILL. 6" 6" MINIMUM BURY.
 - 6 NEW 6" WELL AND SPRING LINES UP THROUGH FLOOR OF REARING ROOM A. SLEEVE PENETRATIONS THROUGH FLOOR WITH 5 GALLON BUCKETS. VALVE TO BE 3' AFF MINIMUM.
 - 7 FLOOR DRAIN IN HOT ROOM TO DRAIN INTO TROUGH IN REARING ROOM B.
 - 8 TROUGHS IN REARING ROOMS A & B TO DRAIN INTO SUMP IN MECHANICAL ROOM.
 - 9 UV DISINFECTION SYSTEM, SUMP PUMP, AND PIPING LOCATED IN MECHANICAL ROOM SUMP. SEE SUMP AND SUMP PUMP DETAILS ON M3.0.
 - 10 6" DRAIN TO CONNECT TO 27" RCP DRAIN PIPE WITH NEW 48" MANHOLE.
 - 11 INSTALL SPRING PIPING SIMILAR (NOT SHOWN ON PLANS) AS WELL PIPING. SLEEVE AND SEAL ALL WALL PENETRATIONS WITH PVC AND 100% SILICONE. MOUNT PIPING HORIZONTALLY 48" AFF.
 - 12 MOUNT ALL INDOOR PIPING ON STRUT SECURED TO WALL AND CLAMPS.
 - 13 VALVES TO BE APOLLO MODEL 215LxSSP2FA1, OR EQUAL LUG STYLE VALVES. PROVIDE FLANGES AND BARE PVC CONNECTION ON OUTLET FOR FWP STAFF TO CONNECT OWNER PROVIDED CONNECTIONS.

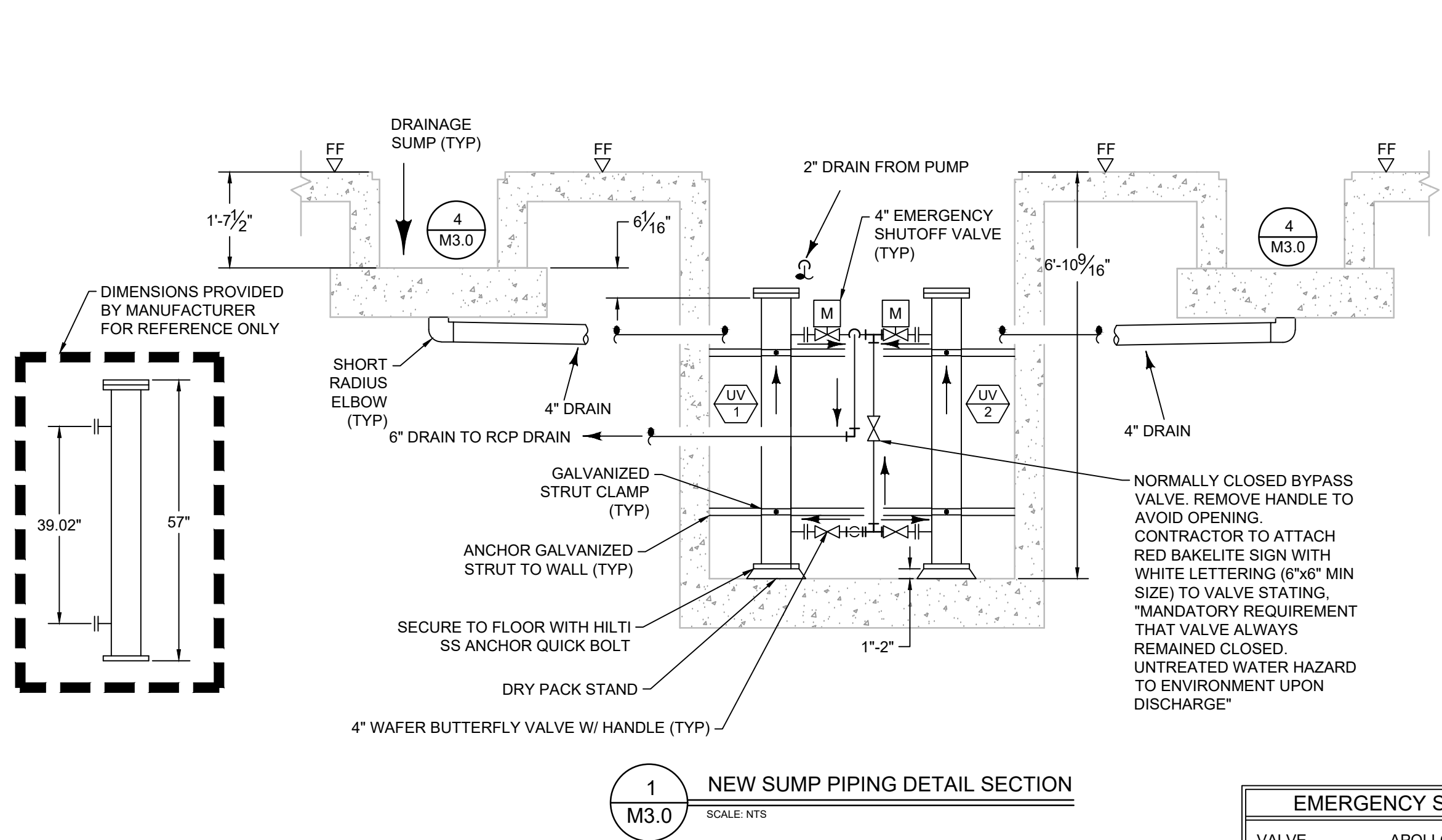


3
M2.0
3-D HATCHERY BUILDING PIPING DEMOLITION PLAN
SCALE: NTS

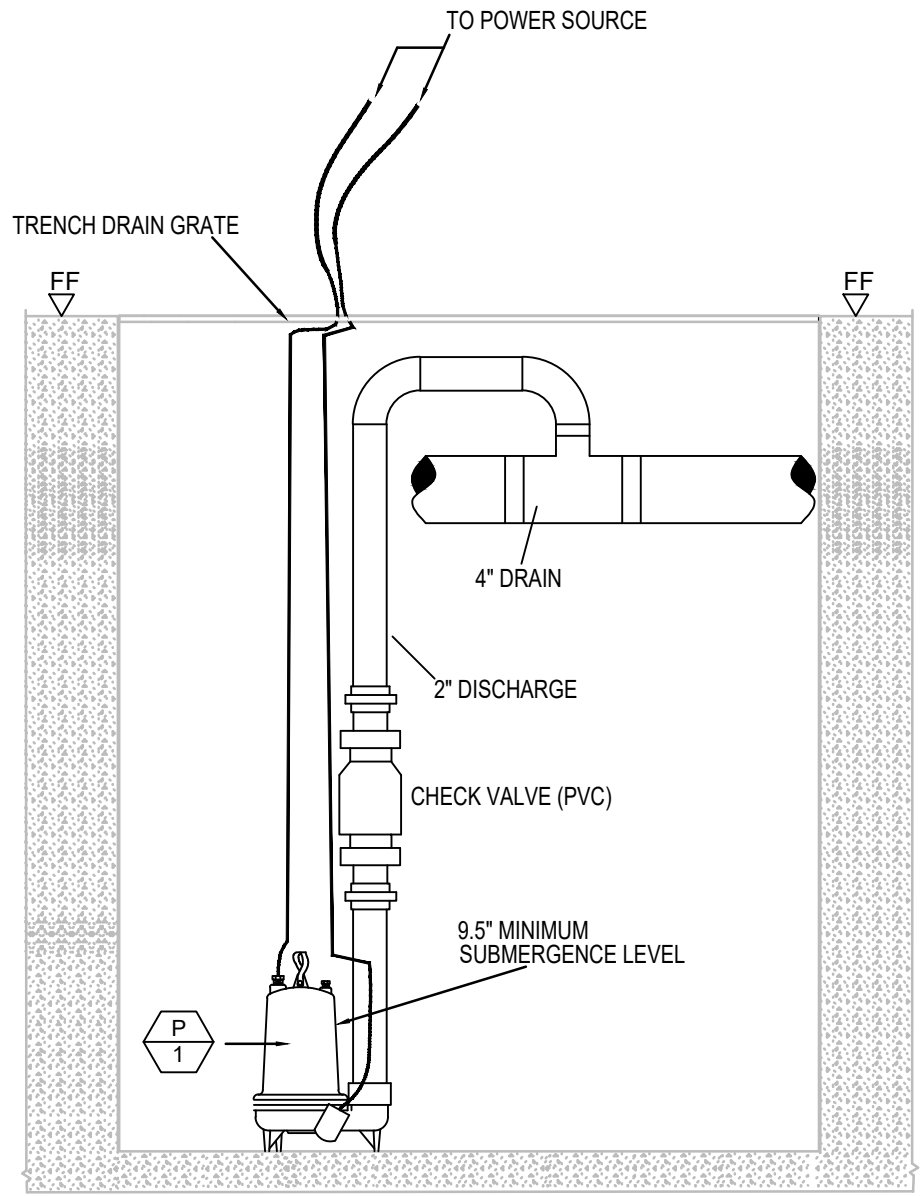


4
M2.0
3-D HATCHERY BUILDING NEW PLUMBING PLAN
SCALE: NTS

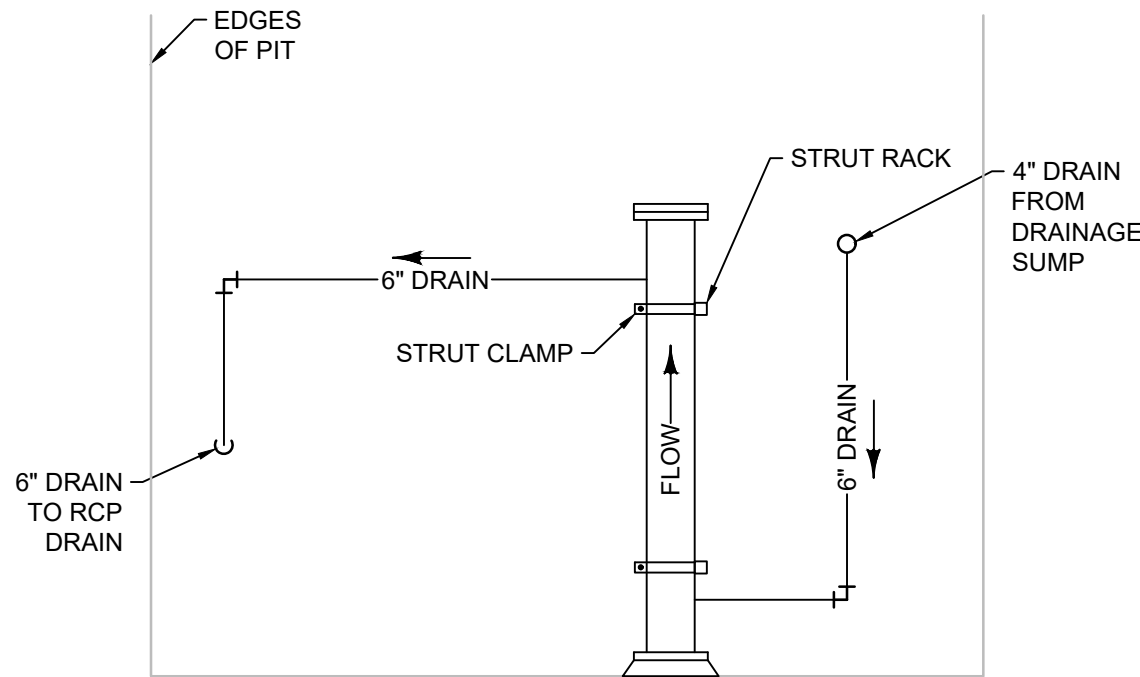
<p>REBID SET</p> <p>Dawes Engineering & Design</p> <p>46 Hibbard Way Helena, MT 59601 (406) 441-4000 p</p>							
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<p>SHEET CONTENTS</p> <p>PLUMBING PLAN</p>	<p>ISSUE DATE: JULY 17, 2017 DATE: JULY 17, 2017 DRAWN BY: PMWW CHECKED BY: RD</p> <p>REV # X REV DATE: XXXXXXXX</p> <table border="1"> <tr> <td>REV #</td> <td></td> </tr> <tr> <td>REV #</td> <td></td> </tr> <tr> <td>REV #</td> <td></td> </tr> </table> <p>SHEET NUMBER M2.0</p>	REV #		REV #		REV #	
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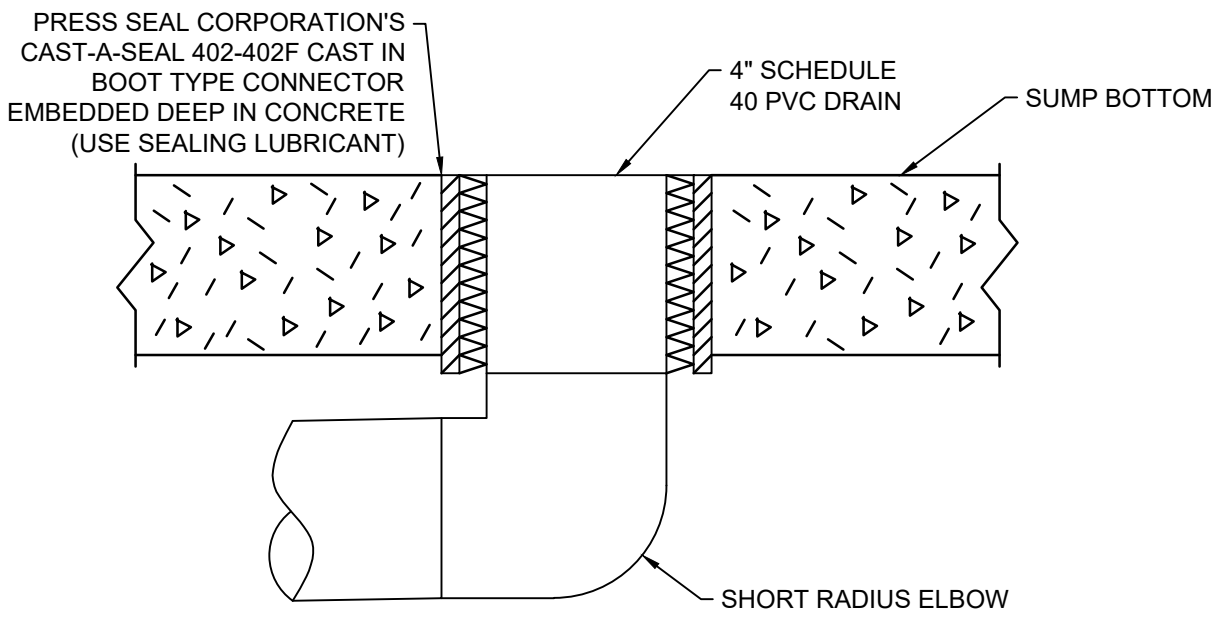
1
M3.0
NEW SUMP PIPING DETAIL SECTION
SCALE: NTS



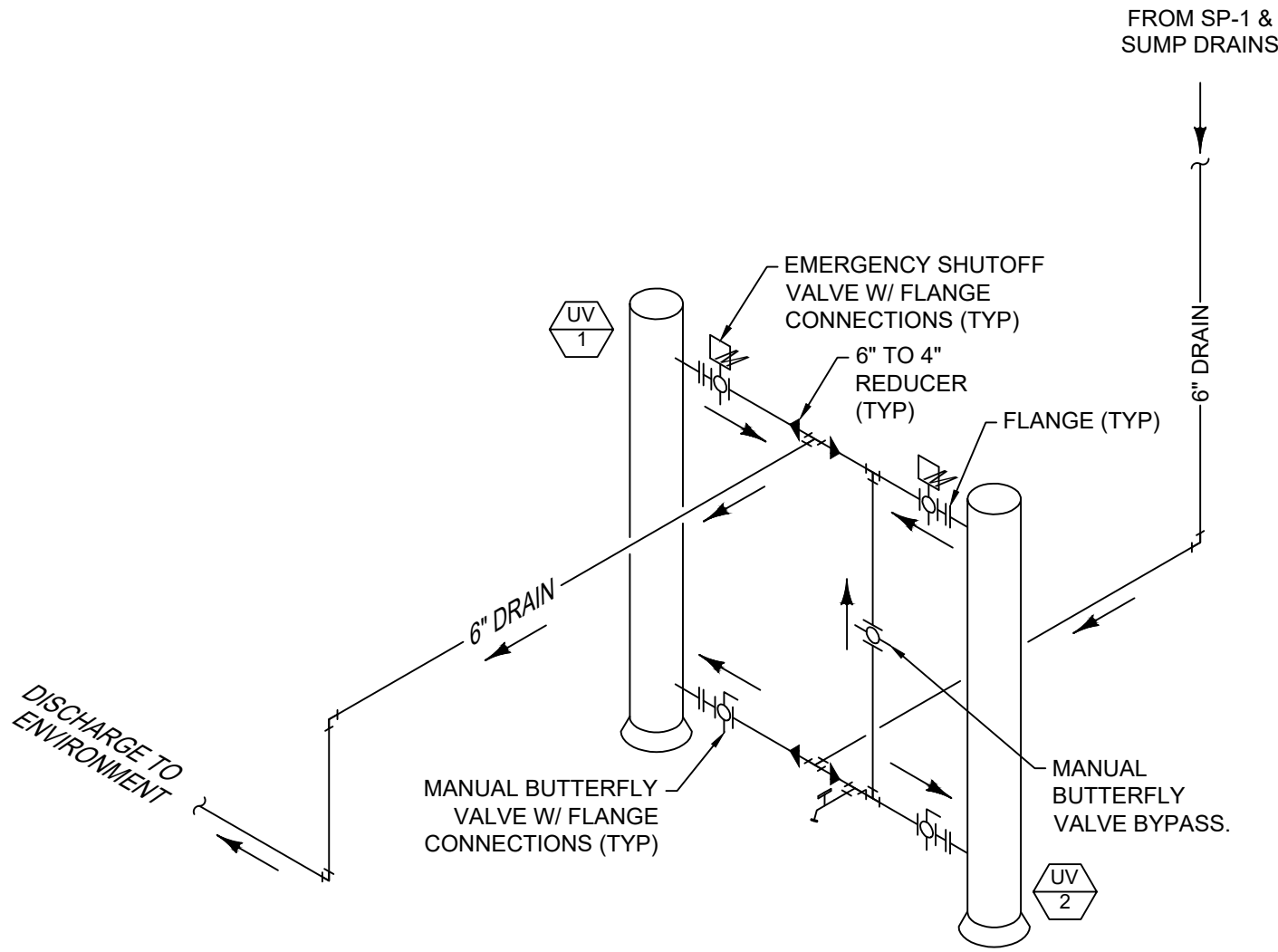
2
M3.0
SUMP PUMP DETAIL SECTION
SCALE: NTS



3
M3.0
NEW SUMP PIPING DETAIL SECTION
SCALE: NTS



4
M3.0
NEW SUMP DRAIN PIPING DETAIL
SCALE: NTS



5
M3.0
UV DRAIN ISOMETRIC SCHEMATIC
SCALE: NTS

EMERGENCY SHUTDOWN VALVE (TYP)	
VALVE -	APOLLO MODEL WD14504SE10
ACTUATOR-	APOLLO MODEL LB0A8, 120V, 290lb-in, 5s
	CLOSE
MOUNTING KIT-	APOLLO MODEL CX03055
OR EQUAL	

MANUAL BUTTERFLY VALVE (TYP)	
VALVE -	APOLLO MODEL WD14504SE10
MOUNTING KIT-	APOLLO MODEL CX03055
OR EQUAL	

PLUMBING FIXTURE SCHEDULE							
FIXTURE TAG	DESCRIPTION	MANUFACTURER & MODEL #	PIPING CONNECTIONS				REMARKS
			TRAP	S/W	VENT	C.W.	H.W.
FD-1	FLOOR DRAIN	ZURN ZN415BZ		4"			

GRILLE/REGISTER/DIFFUSER SCHEDULE				
SR=SUPPLY DIFFUSER		RG=RETURN GRILLE	SD=SUPPLY DIFFUSER	EG=EXHAUST GRILLE
TG=TRANSFER GRILLE				
TAG NO.	NEXK SIZE	TYPE	MANUFACTURER AND MODEL	MATL/FINISH
RG-1	10" X 10"	WALL MOUNT	NAILOR 7145H-O	WHITE
Options and Accessories				
Notes:				
-				

ELECTRIC HEATER SCHEDULE							
EQUIPMENT TAG	SERVICE	UNIT MODEL/SIZE	WEIGHT (LBS)	INPUT (KW) NOM	ELECTRIC		MANUFACTURER
					FLA	VOLT -PH.-CY.	
EH-1	HEATING	240-U1050D	<25	5	14.18	208/3/60	INDEECO
EH-2	HEATING	240-U1038D	<25	3.8	10.85	208/3/60	INDEECO
EH-3,4	HEATING	240-U1025C	<25	2.5	12.3	208/1/60	INDEECO
Notes:							
1. PROVIDE WITH CEILING MOUNT BRACKET, FUSED DISCONNECT, AND FACTORY WALL MOUNT THERMOSTAT.							

PUMP SCHEDULE							
ITEM TAG	SERVICE	LOCATION	MOTOR				OPTIONS-ACCESSORIES
			HP	RPM	VOLT.-PH.-CY.	FLA	
P-1	SUMP PUMP	MECH ROOM SUMP	1/2	3450	115-1-60	8.5	LIBERTY 287
Notes:							
1. ORDER WITH 25' CORD LENGTH (-2).							

FAN SCHEDULE									
EQUIP. NUMBER	SERVICE	LOCATION	CFM	STATIC PRESS (IN W.G.)	MOTOR			MANUFACTURER & MODEL	NOTES
					AMP	WATTS	SONES		
EF-1	EXHAUST	HOT ROOM	50	0.25	0.53	45.1	2	120/1/60	GREENHECK SP-B70
EF-2	EXHAUST	REARING A	225	0.25	0.77	83.1	2.5	120/1/60	GREENHECK SP-A250
EF-3	EXHAUST	REARING B	154	0.25	1.3	113	2.5	120/1/60	GREENHECK SP-A190
RF-1	RADON	MECHANICAL ROOM	150	0.25	0.73	83	-	120/1/60	FANTECH DBF4XLT
Notes:									
1. OPERATE AS TASK EXHAUST AS CONTINUOUS (MANUAL ON/OFF) WHEN ROOM IS ENGAGED WITH FISH.									
2. OPERATE CONTINUOUSLY 24/7.									
3. SUPPLY AND INSTALL TJERLAND MODEL RA1 FAN FAILURE ALARM TO SOUND AUDIBLE ALARM WHEN FAN FAILS.									

PIPE MATERIAL AND INSTALLATION SCHEDULE					
SERVICE OR SYSTEM	MATERIAL	PIPE SIZE	INSULATION THICKNESS	PIPE SIZE	PRESSURE TEST*
DOMESTIC COLD WATER	TYPE L COPPER, VIEGA PEX (INSIDE WALLS AND CRAWLSPACE ONLY), PRO-PRESS	ALL	1/2" FIBERGLASS	ALL	100 PSI AIR-30MIN
DOMESTIC HOT WATER (100-180DEG F)	TYPE L COPPER, VIEGA PEX (INSIDE WALLS AND CRAWLSPACE ONLY), PRO-PRESS	ALL	1" FIBERGLASS	ALL	100 PSI AIR-30MIN
SANITARY SEWER U/G	SCHEDULE 40 PVC DWW, HUBLESS CAST IRON	ALL	NONE	N/A	20 PSI AIR-60MIN
SANITARY SEWER A/G	SCHEDULE 40 PVC DWW, HUBLESS CAST IRON	ALL	NONE	N/A	20 PSI AIR-60MIN
HATCHERY PIPING	SCHEDULE 40 PVC DWW (PRESSURE) / SCHEDULE 80 SOLVENT WELD FITTINGS	ALL	NONE	N/A	25 PSI AIR-60MIN
RADON PIPING U/G	SDR / PERFORATED	ALL	NONE	N/A	N/A
RADON PIPING A/G	SCHEDULE 40 PVC	ALL	NONE	N/A	N/A

NOTES:

1) INSULATION TO BE OF HEAVY DENSITY FIBERGLASS WITH ALL SERVICE JACKET (WHITE). FITTING TO BE PVC ZESTON COVERS WITH FLEXIBLE INSULATION WRAP. SEAL ALL JOINTS WITH SEALANT. K VALUE NOT TO EXCEED 0.27 BTU PER IN/h*FT*2 DEG F.

2) SEISMIC BRACE ALL PIPE GREATER THAN 2 1/2" ID PER LOCAL CODE.

GENERAL NOTE: SEAL ALL NON TRATED STRUCTURE PIPE PENETRATIONS INCLUDING DRAFT SHOPS WITH SILICON OR FIRE RATED EXPANDING FOAM. SEAL ALL RATED PIPE PENETRATIONS IN ACCORDANCE WITH CONTRACTOR SELECTED MFR FIRE CAULK SYSTEM (AND OR FIRE COLLAR) AND MATCH RATING WITH SPECIFIC UL LISTING. PROVIDE ENGINEER AND INSPECTOR FOR AHJ WITH SHOP.

* PROVIDE WRITTEN AND SIGNED REPORT BY CONTRACTOR FOR ALL SYSTEMS TESTED, TYPE OF TEST, DATE, PRESSURE, TIME START, TIME END AND SYSTEM TESTED. SUBMIT TO ENGINEER IN IOM SUBMITTAL.

REBID SET

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WASHOE HATCHERY ADDITION

600 W PENNSYLVANIA AVE
ANACONDA, MT 59711

SHEET CONTENTS

EQUIPMENT SCHEDULES AND DETAILS

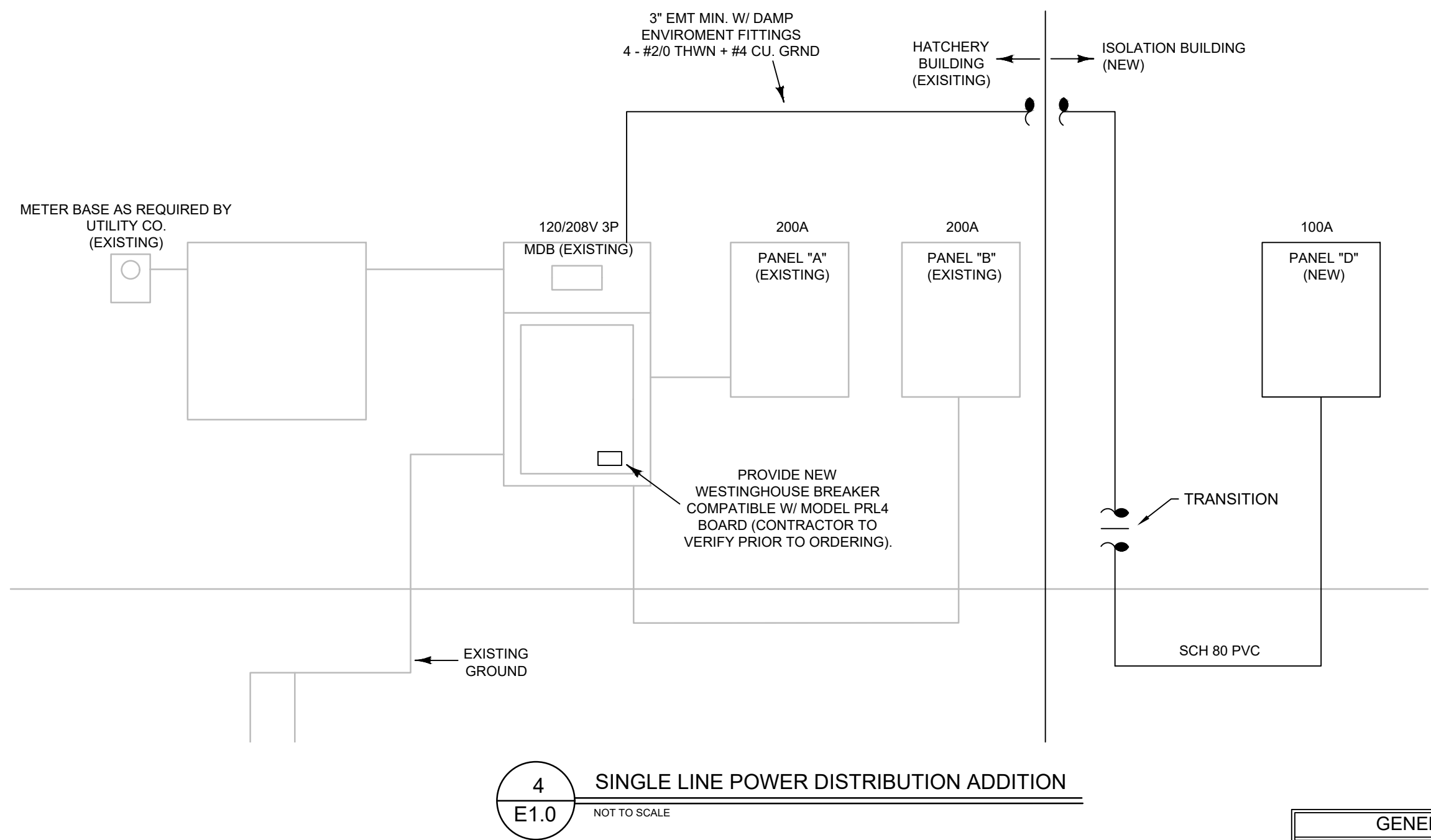
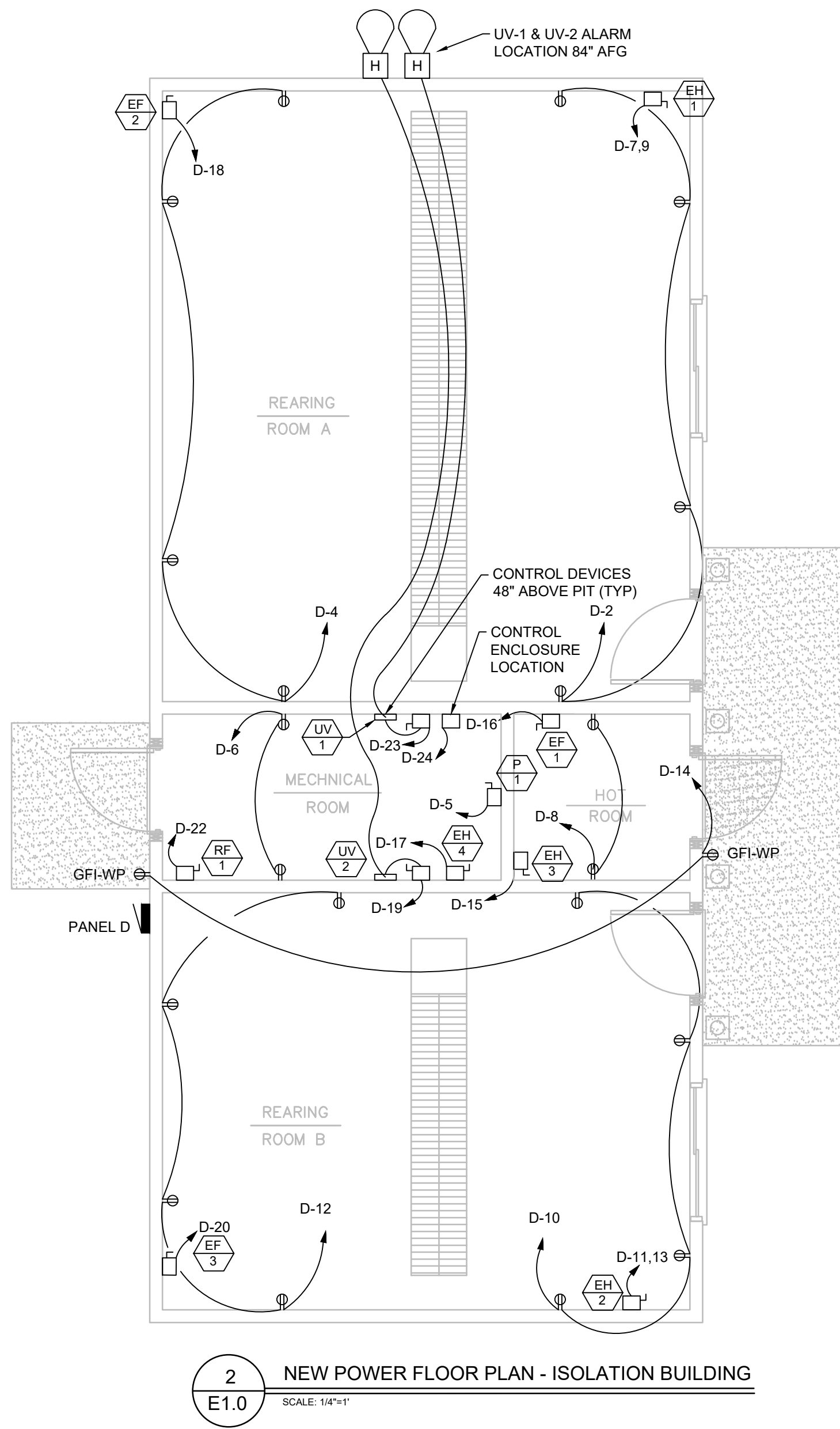
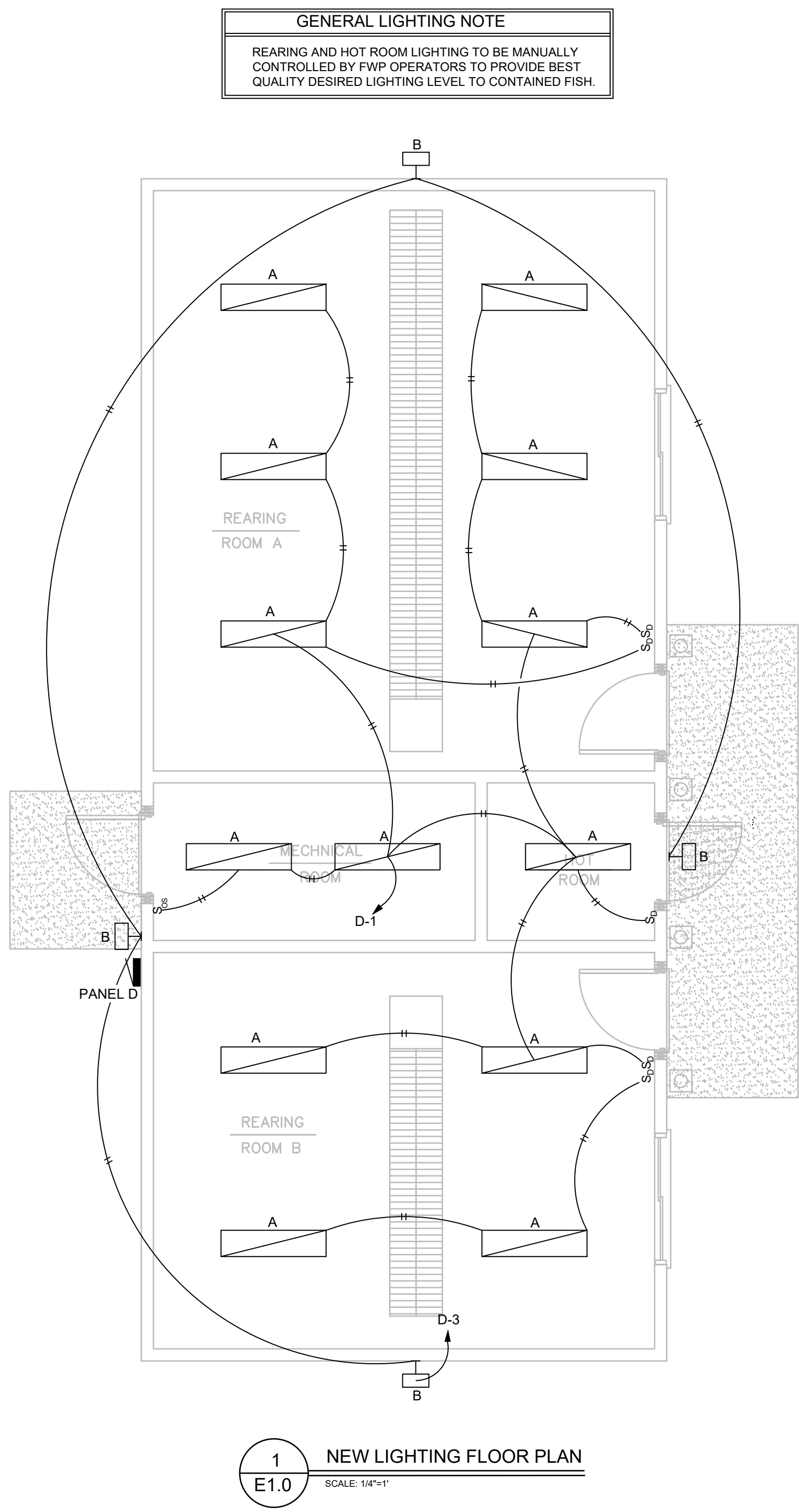
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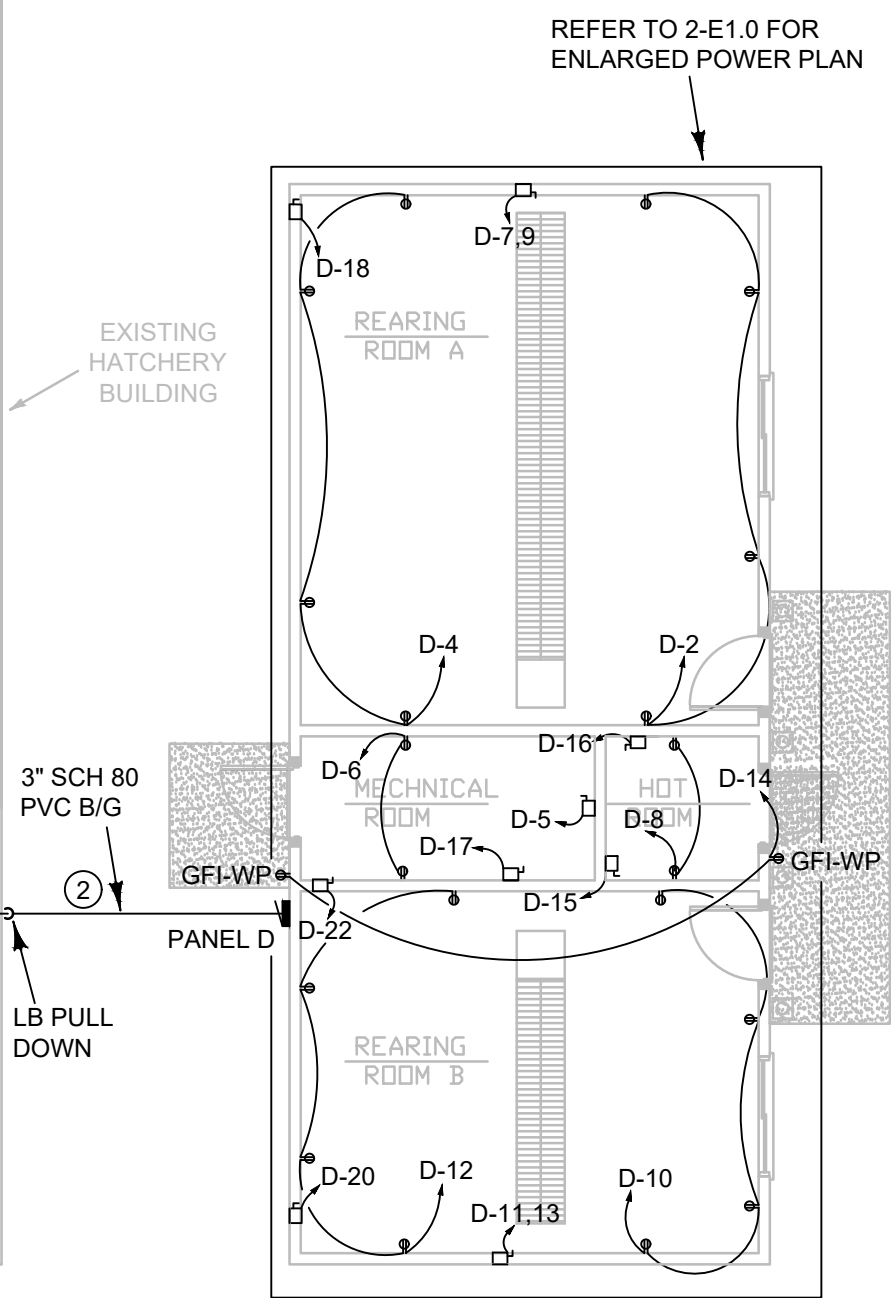
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SHEET NUMBER
M3.0

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GENERAL ELECTRICAL NOTES	
ALL RECEPTACLES: @48" AFF, WET APPLICATION GFCI BREAKER CIRCUIT.	
ALL RACEWAY AND WIRING METHODS TO BE INSTALLED FOR DAMP ENVIRONMENT IN NEW ISOLATION BUILDING.	
KEYED ELECTRICAL NOTES	
①	NEW RACEWAY FROM EXISTING MDB PANEL, 3" MIN.
②	NEW RACEWAY PENETRATION TO OUTSIDE. INSTALL UNDERGROUND RACEWAY TO NEW PANEL D.



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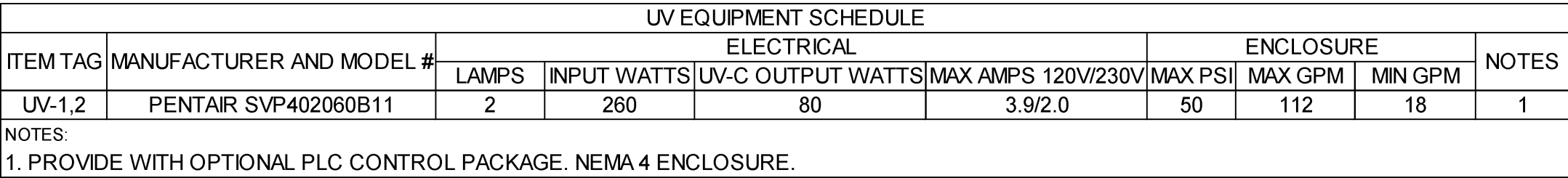
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600 W PENNSYLVANIA AVE ANACONDA, MT 59711

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DATE: JULY 17, 2017		DRAWN BY: PMWW	
CHECKED BY: RD		REV #	
REV DATE: X XXXXXXX		REV #	
NEW LIGHTING AND POWER FLOOR PLAN		SHEET NUMBER	
		E1.0	



LIGHT FIXTURE SCHEDULE									
DESIGNATIO N LETTER	FIXTURE					LAMP		TOTAL WATTS	NOTES
	MANUFACTURER	DESCRIPTION	CATALOG NUMBER	LOCATION	MOUNTING	TYPE	NUMBER		
A	LITHONIA LIGHTING	LOW-PROFILE LED WRAP	LBL4 4800LM 80CRI 40K MN1 ZT MVOLT	CEILING	SURFACE	LED	1	40.8	2.3
B	LITHONIA LIGHTING	LED EXTERIOR WALL PACK	CSXW LED 30C 700 40K TFTM MVOLT DDBXD	WALL	SURFACE	LED	30	104	1

NOTES:
1) DAYLIGHT SENSOR (FACTORY INSTALLED).
2) 0-10V DC DIMMING
3) PROVIDE CONTROL TO BE LEVITON (OR EQUAL) MANUAL SWITCH WITH 0-10V DC LEVER CONTROL.

PANEL MDB (EXISTING)																		
PANEL LOCATION: WASHOE HATCHERY MFR/MODEL: SQUARE D-NQ AIC: 10,000				L-L VOLT: 208		PHASE: 3		MAIN: BREAKER Y			BREAKER N							
				L-N VOLT: 120		WIRES: 4		WIRE SIZE: (EXIST)			FED FROM: MDP							
				AMP: 600		NEURAL 100%		COND. SIZE: (EXIST)			MOUNT: RECESSED							
DESCRIPTION	BREAKER			L-LOAD	R-LOAD	O-LOAD	T/S/O/M/ A/E/H	PHASE			T/S/O/M/ A/E/H	O-LOAD	R-LOAD	L-LOAD	BREAKER			DESCRIPTION
	TYPE	POLE	AMP					1	A	2					AMP	POLE	TYPE	
PROVISION		3	100					1	A	2					100	3		PANEL C (EXIST)
								3	B	4								
								5	C	6								
PROVISION		3	100					7	A	8					100	3		PANEL D (NEW)
								9	B	10								
								11	C	12								
PROVISION		2	200					13	A	14					200	3		PROVISION
								15	B	16								
								17	C	18								
PANEL B (EXIST)		2	200					19	A	20					200	3		PANEL A (EXIST)
								21	B	22								
								23	C	24								
								25	A	26								
								27	B	28								
								29	C	30								
								31	A	32								
								33	B	34								
								35	C	36								
								37	A	38								
								39	B	40								
								41	C	42								
SUMMARY CONNECTED LOADS				0	0		M A S S E H T O	LOAD (VOLT-AMPERES)			M A S E H T O	0	0	SUMMARY CONNECTED LOADS				

PANEL "D"																			
PANEL LOCATION: WASHOE HATCHERY MFR/MODEL: SQUARE D-NQ AIC: 10,000				L-L VOLT: 208		PHASE: 3		MAIN: LUG Y		BREAKER Y									
				L-N VOLT: 120		WIRES: 4		WIRE SIZE: 4-#2/0 THW				FED FROM: MDP							
				AMP: 125		NEURAL 100%		COND. SIZE: 3"				MOUNT: SURFACE							
BREAKER										BREAKER									
DESCRIPTION	TYPE	POLE	AMP	L-LOAD	R-LOAD	O-LOAD	T/S/O/M/A/E/H		PHASE		T/S/O/M/A/E/H	O-LOAD	R-LOAD	L-LOAD	AMP	POLE	TYPE	DESCRIPTION	
INTERIOR LIGHTING		1	20	832				1	A	2			720		20	1	GFCI	REARING ROOM A EAST RECEPTACLES	
EXTERIOR LIGHTING		1	20	416				3	B	4			720		20	1	GFCI	REARING ROOM A WEST RECEPTACLES	
PUMP (P-1)		1	20				978	M	5	C	6		360		20	1	GFCI	MECHANICAL ROOM RECEPTACLES	
REARING ROOM A (EH-1)		2	20			2554	H	7	A	8			360		20	1	GFCI	HOT ROOM RECEPTACLES	
		2	20			2554	H	9	B	10			720		20	1	GFCI	REARING ROOM B EAST RECEPTACLES	
REARING ROOM B (EH-2)		2	20			1954	H	11	C	12			720		20	1	GFCI	REARING ROOM B WEST RECEPTACLES	
		2	20			1954	H	13	A	14			360		20	1	GFCI	EXTERIOR GFI OUTLET RECEPTACLES	
HOT ROOM (EH-3)		1	20			2559	H	15	B	16	E	45			20	1		HOT ROOM (EF-1)	
MECH ROOM (EH-4)		1	20			2559	H	17	C	18	E	83			20	1		REARING ROOM A (EF-2)	
UV LIGHT (UV-1)		1	20	480				19	A	20	E	113			20	1		REARING ROOM B (EF-3)	
SPARE		1	20					21	B	22	E	83			20	1		RADON FAN (RF-1)	
UV LIGHT (UV-2)		1	20	480				23	C	24	E	250			20	1	GFCI	UV ALARM CONTROL	
SPARE		1	20					25	A	26					20	1		SPARE	
SPARE		1	20					27	B	28					20	1		SPARE	
SPARE		1	20					29	C	30					20	1		SPARE	
SPARE		1	20					31	A	32					20	1		SPARE	
SPARE		1	20					33	B	34					20	1		SPARE	
SPARE		1	20					35	C	36					20	1		SPARE	
SPARE		1	20					37	A	38					20	1		SPARE	
SPARE		1	20					39	B	40					20	1		SPARE	
SPARE		1	20					41	C	42					20	1		SPARE	
SUMMARY CONNECTED LOADS				2208	0		978	M			M	0	3960	0	SUMMARY CONNECTED LOADS				
							0	A			A	0							
							0	S			S	0							
							0	E	LOAD		E	574							
							14134	H	(VOLT-AMPERES)		H	0							
						0	T			T	0								
						0	O			O	0								
DESCRIPTION		CONN. KVA		D.F.	DEM. KVA		TOTAL CONNECTED LOAD				59.1 AMP		21.3 KVA		LEGEND/KEY				
LIGHTING		2.2		1.25	2.8														
RECEPTACLES (FIRST 10KW)		4.0		1.0	4.0		TOTAL DEMAND LOAD				61.4 AMP		22.1 KVA		T=TRANSFORMER				
RECEPTACLES (REMAINDER)		0.0		0.5	0.0		DESIGN (MAX)				100 AMP		72 KVA		S=SUBFEED				
MOTORS		0.0		1.0	0.0		SPARE LOAD				39 AMP		49.9 KVA		O=OTHER				
LARGEST MOTOR		1.0		1.25	1.2										M=MOTOR				
APPLIANCES		0.0		1.0	0.0										A=APPLIANCE				
SUBFEED		0.0		0.8	0.0		CONNECTED LOAD BALANCE SUMMARY								E=EQUIPMENT				
EQUIPMENT				1.0	0.0		PHASE A				20.5 AMP		7.373 KVA		H=HEATING				
HEATING		14.1		1.0	14.1		PHASE B				19.7 AMP		7.097 KVA		R=RECEPTACLES				
TRANSFORMER		0.0		1.0	0.0		PHASE C				20.5 AMP		7.384 KVA		L=LIGHTING				
OTHER		0.0		1.0	0.0										CONN=CONNECTED				
TOTAL KVA		21.3 KVA			22.1 KVA		A TO B				4 %				DEM=DEMAND				
TOTAL AMP		59.1 AMP			61.4 AMP		B TO C				-4 %				SPR=SPARE				
DESIGN (MAX)					200 AMP		C TO A				0 %				SPC=SPACE				
SPARE					138.6 AMP										D.F.=DEMAND FACTOR				
															GFCI=GROUND FAULT CIRCUIT				
															ST-SHUNT TRIP				

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<p>SHEET CONTENTS:</p> <h2 style="text-align: center;">ELECTRICAL DETAILS AND SCHEDULES</h2>	<div style="text-align: right;"> <p>ISSUE DATE:</p> <p>DATE: JULY 17, 2017</p> <p>DRAWN BY: PM/WW</p> <p>CHECKED BY: RD</p> <p>REV #:</p> <p>REV DATE:</p> </div> <p style="text-align: right;">X XX/XX/XX</p> <table border="1" style="width: 100%;"> <tr><td>REV #</td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> </table> <p style="text-align: center;">SHEET NUMBER</p> <h1 style="text-align: center;">E 2.0</h1>	REV #									
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